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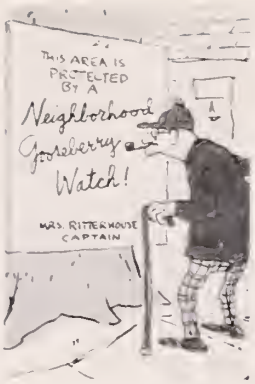
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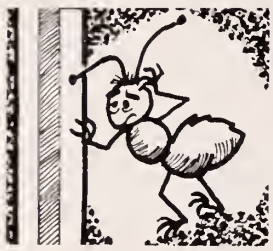
THE
green scene
HORTICULTURE IN THE DELAWARE VALLEY
SEPTEMBER • OCTOBER • 1985 $1.50

GOOSEBERRY:
the fruit with a courteous taste

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A good photo invites you in

See one lily and you've seen them all. Sometimes that's the way I feel when I get bored looking at pretty pictures. Then along comes a photograph of three lilies, translucent against the light, arranged in such a way that you are compelled to look and wonder what makes these three lilies different from all the others. Apart from technical skills, what makes them different is the photographer's special way of seeing the world, noticing what is going on with light and dark, texture and shape and getting that special vision down on paper.

The photo on pages 18 and 19 is Ann Reed's and it won "Best of Show" in the PHS photo competition in June. In the six competitive categories, Ann took three firsts, two seconds and two thirds. She netted cash awards amounting to $260.

The judges were Don McPhail, a corporate executive who is also president of the Print Club; John Gouker, a photojournalist who jets around the country taking candids of corporate officers and workers on the move; and your editor. I was delighted when all three of us immediately picked for the Best of Show the black and white photo from among the many beautiful color photos. One of the allures of that black and white photo is its ambiguity: is it snow flying, or are they leaves? Is it dusk or just a wintry afternoon? Is it a woods or a park or a garden? What is the sound like in that enclosure at the moment? There's a quiet energy in the photo that invites the viewer in — makes you want to enter the photograph and stay there for awhile.

Assistant horticulturist, Joe Kerwin, who developed the competition along with horticulturist Ed Lindemann, says PHS will sponsor another next year. He hopes you will keep your cameras clicking, and let us all share your vision of the way the world looks to you, and that your photos will expand the way we look at the world around us. We'll let you know when it's time to send us your photos.

Jean Byrne

PRIZE WINNERS — 1985 PHS PHOTO CONTEST

BEST OF SHOW
Ann L. Reed

CLASS #1 WINTERSCAPE
1st Ann L. Reed
2nd J. Peter Muhlenberg

CLASS #2 GARDEN FRIENDS
1st Gene Szymkowiak Jr
2nd Ann L. Reed
3rd J Peter Muhlenberg

CLASS #3 PLANT PORTRAIT
Color
1st Ann L. Reed
2nd J Peter Muhlenberg
3rd Kevin Jeffrey Morgan

Black & White
1st Harriett B. Green
2nd Harriett B. Green

CLASS #4 GARDEN ORNAMENT OR SCULPTURE
1st Ann L Reed
2nd Andrew C. Durham
3rd Saul Koltnow

CLASS #5 PATTERNS
1st Marcia R Evans
2nd Harriett B Green
3rd Ann L. Reed

CLASS #6 REFLECTIONS
1st Richard E. Joyce
2nd Andrew C. Durham
3rd Ann L. Reed

GREEN SCENE CIRCULATION THIS MONTH: 11,200

Welcome new subscribers

In May we welcomed to our *Green Scene* family, with great pleasure, contributing members of the Reeves Reed Arboretum of the City of Summit, (New Jersey). This month, with equally great pleasure, we welcome the members of Hershey Gardens of Hershey, Pennsylvania. As you know, organizations that offer a *Green Scene* subscription as a benefit to their members are listed on the inside front cover of each issue.

Don't hesitate to call us or write for information if you know of horticultural organizations that would like to receive *Green Scene* for their members.

Jane Pepper
President

Jean Bryne
Editor

The New Cyclamens Bloom Much Longer

by Jane G. Pepper



photo courtesy Longwood Gardens, by Dick Keen

Pannevis strain

Its reviews have, until recently, been mixed — beautiful but difficult; striking but short-lived; flowers glorious but fleeting. In the cool temperatures of the Victorian home the cyclamen was a popular house plant, flourishing with nighttime temperatures between 45° and 50°F. With the introduction of central heating and temperatures in the 70s the cyclamen went out of favor because it quit flowering within a couple of weeks of being moved from the greenhouse to the home.

Today, thanks to intensive breeding work by seed companies in Holland and Japan, the cyclamen is enjoying renewed popularity with American gardeners. Working with *cyclamen persicum* and the small, hardy *C. purpurascens,* these breeders have produced smaller, compact varieties that are heat tolerant, and some even have fragrant flowers. In addition, as a bonus for the grower they will flower from seed in eight to nine months, compared to fifteen months required for the older varieties.

According to Ron Strasko, grower-manager of Green Leaf Enterprises, Inc., Leola, Pa. two seed companies, Sluis & Groot in Holland and Sakata in Japan, have produced the most striking improvements through their breeding programs. In 1985 Green Leaf Enterprises produced 50,000 cyclamen for shipping to growers in all 50 states, as well as Canada and Puerto Rico. The imported seed is sown in late spring. In late June/early July most of the plants are shipped to growers as cells — pack liners, with 48, 70 or 92 plants per flat. Starting with these small plants in early summer a grower can produce a blooming cyclamen in a 4½ inch pot after four months and one in a 6 in. pot after six months. To bloom, a cyclamen must be rootbound but once it's in bloom the homeowner should be able, under the correct conditions, to keep it in bloom for four to five months. Last winter my pre-Thanksgiving purchases bloomed their heads off until late April, first near the glass in a south-facing window. In February, as the light grew stronger I moved them into the middle of a room with a western exposure.

Delaware Valley growers seem to favor

four strains of these new cyclamen. Pannevis, a medium sized plant that seems to hold its compact form, comes in a selection of flower colors ranging from Boheme, the traditional Christmas red to Manon, a dark salmon. Finlandia is the white variety and there's even a lilac-colored one called Tosca. At Green Leaf Enterprises they grow nine varieties of Pannevis then ship some of each to the retail outlet, trying to give each organization a selection of colors to offer the customer. Laysers of Myerstown, Pa. also grow the Pannevis varieties and Don Layser noted that they like to grow this variety on the dry side to ensure a smaller, more compact plant with many blooms that fits easily into a home. Laysers also grow the Tas series, which blooms quicker from seed.

At Green Leaf Enterprises only 20-25% of their shipments are finished plants; at Laysers 100% of the crop is fully grown and about to bloom. In 1984 Laysers grew 12,000 cyclamen in six inch pots and 14,000 in 4½ inch pots. For 1985 they planned the same number of six inch pots and more 4½ inch pots to accommodate the consumer's growing interest in a small, moderately priced blooming plant. In these smaller pots both companies grow the Kaori cyclamen, a miniature variety whose seed is shipped from the Sakata company in Japan in mixed colors. The Kaori foliage is strikingly marked and the flowers are fragrant. In addition, to Kaori, Green Leaf Enterprises also grows another miniature, Minikin mix that has smaller leaves, which are also variegated.

Thanks to thess newer varieties, garden centers now offer cyclamen for sale from late October through Valentine's Day. To get the best results Ron Strasko suggests you keep your plant in the brightest and coolest possible spot, out of direct sunlight. The best growing temperature is between 55-60°F. The closer you get to 70°F the shorter their blooming period. Keep the soil moderately moist and feed with a regular house plant fertilizer once every three weeks. Judging by comments from growers the cyclamen is back to stay and will continue to enjoy increased popularity as seed companies around the world continue to produce more varieties suited to our present lifestyles.

●

Jane Pepper is president of the Pennsylvania Horticultural Society and writes a weekly gardening column in the Sunday *Inquirer Books & Leisure Section.*



photo courtesy Longwood Gardens, by Dick Keen

Pannevis strain



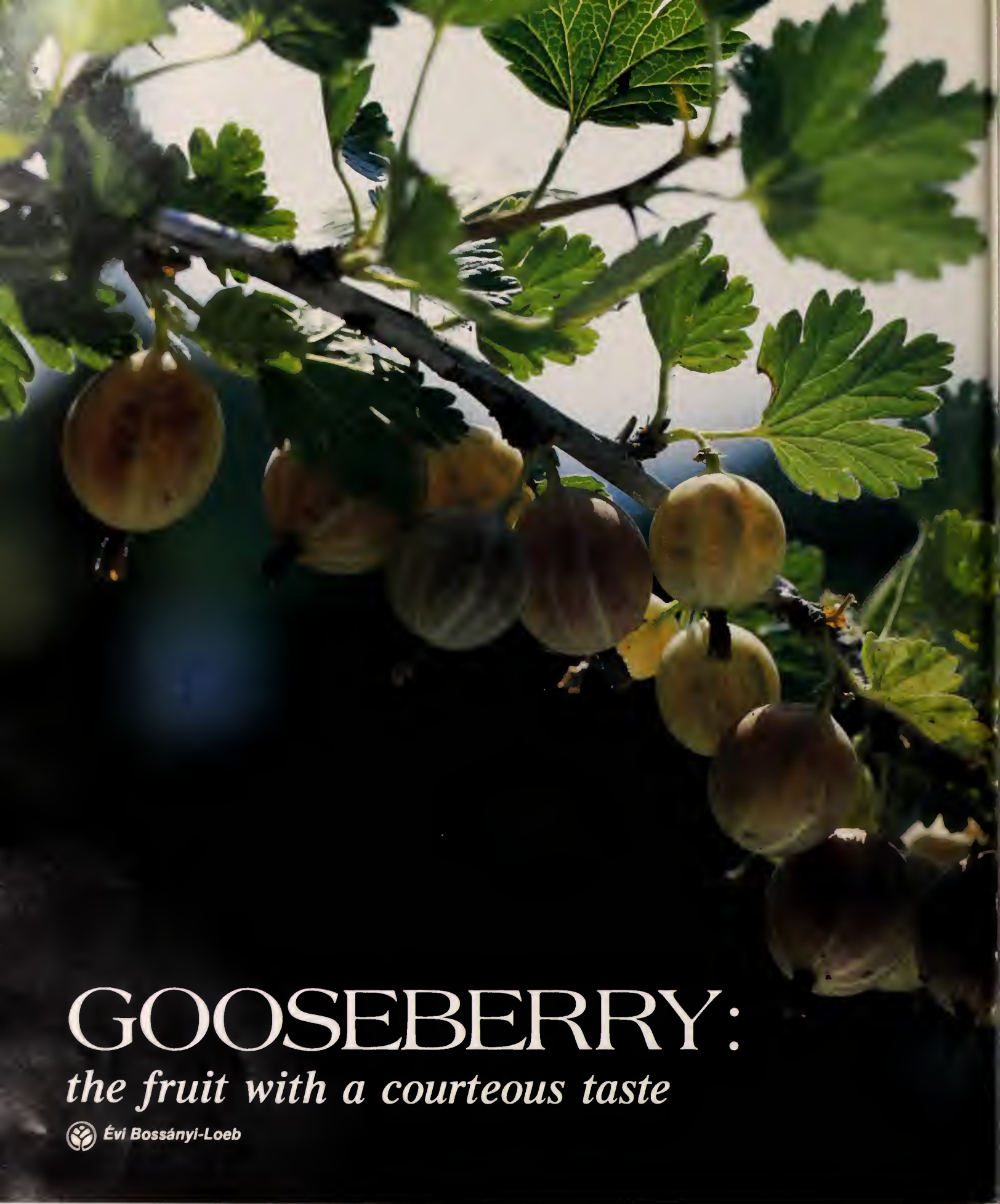
photo courtesy Longwood Gardens, by Dick Keen

Kaori strain



photo courtesy Green Leaf Enterprises

Cyclamens at Green Leaf Enterprises' greenhouse in Leola, Pa.



GOOSEBERRY:

the fruit with a courteous taste

Évi Bossányi-Loeb



Ribes uva-crispa

photos by Walter Chandoha

When I was doing post-graduate studies in England, I first became familiar with the translucent, shimmering appearance of gooseberries. I perceived them as one of Nature's simple and beautiful creations.

Easten uncooked, when fully ripe, a gooseberry is hardly exotic like a persimmon, not exquisitely luscious like a red or golden raspberry, not delectably juicy like a sun-ripened tomato, or even enduringly palatable like a yellow banana. The gooseberry for all its glossy globularity is a tranquil, translucent, tame fruit. No amount of Madison Avenue hype could elevate it to #1 fruit status in the United States. It has never caught the fancy of the American public. On the other side of the Atlantic, however, the citizens of Great Britain hold the fruit in high esteem.

Americans may be familiar with goose-

My plants look like a chorus line of frumpy Medusas, but disheveled as they appear, the bounty they produce is applauded annually.

oerry jam, no common, run-of-the-mill preserve. The jars of it in specialty shops or on gourmet shelves in grocery stores generally have an English label with coat of arms and official approval from the Head of State of the British Empire. By the time you pay for the jars' transit to our shores, and labor to transport and display them on our shelves in the markets, you might as well put a down payment on a large bag of Michigan peat and a sack of fertilizer, and grow your own.

The good news is that they are easy to grow. The yield is high for very little labor. Its unobtrusive courteous taste can be quite appealing as long as you are not after excitement. As fruits, gooseberries are exceptionally hardy. Their culture extends nearly to the Arctic Circle. Initially, they are hardly a goose-downy "please touch" encounter; but, so many other redeeming characteristics prevail to endear them to a gardener of true grit. Although gooseberries enjoy lots of water, they resist periods of drought well. They withstand neglect. They are not fussy about soil pH and manage commendably between 5 and 6.5. They don't require the conscientious program of periodic dormant sprays that many fruits must have to prosper.

an accommodating spunky plant

In spring some five years ago when the dozen 'Pixwell' gooseberry plants arrived

continued



Drawn by Booth; © 1985
The New Yorker Magazine, Inc.



literature on growing things. You can grow it in shade, as interplanting in orchards.

During the almost half dozen winters in open Bucks County land, quite unprotected from the elements, they have flourished. They have been mulched with newspapers, mulch up to six inches thick is recommended to protect shallow roots from heat and competition from weeds. For further natural protection the winds have scattered heaps of pine needles.

Those pine needles bring to mind the phenomenon known in horticultural circles as the white pine blister rust. Gooseberries, along with currants, are a host to that

Although gooseberries enjoy lots of water, they resist periods of drought well. They withstand neglect. They are not fussy about soil pH and manage commendably between 5 and 6.5. They don't require the conscientious program of periodic dormant sprays that many fruits must have to prosper.

special fungus infestation for part of their lives. We are told not to plant either bush within 1,000 feet of white pine. New Hampshire and Vermont actually restrict their culture altogether. Since the Delaware Valley at present has no stringent rules pertaining to gooseberry culture, I grow both gooseberries and currants and rejoice each season with a harvest so abundant that we eat them fresh, and still have enough for jams and jellies.

Gooseberries belong to the family Saxifragaceae, genus *Ribes*. Experts say that when a shrub is correctly pruned, it should look like an empty ice cream cone. Nonbearing old wood should be thinned out (cut at ground level) to open the bush to light and air. It is best to prune in February before any growth has started. The goal is to encourage a supply of new wood and eliminate old wood that has passed its usefulness. In practice that means eliminating three year old canes, which might produce good foliage but little fruit and weak one year old canes that come up from the crown, which just make a tangle in the center of the plant. An established plant will have eight to ten vigorous canes. Think of the process as the intelligent transfer of power from parent to offspring: guard the growing robust young wood, allowing it to replace that which is older before the latter has a chance to fail.

My plants look like a chorus line of frumpy Medusas, but disheveled as they appear,

from Wayside Gardens, I simply dug 12 large holes, mixed peat moss and 5-10-5 fertilizer, placed the individual plants about five feet apart, watered well, and hoped. I have since read somewhere that a high potash fertilizer might have been better. These plants have a shallow root system and prefer a moist cool environment. In my garden they have a moist location, but they receive full sun and thrive. It seems to be a gutsy, spunky plant that accommodates well to people who have not read the latest

the bounty they produce is applauded annually. Gooseberries produce flowers singly or in twos or threes. They are self-fertile so that there is no need to plant more than one variety. The horticultural Scripture, *HORTUS, THIRD* instructs us about the existence of 400 varieties of gooseberries. With months of detective work in trying to trace sources for more than the half dozen or so common species, only the suspense has multiplied so far. Would that commercial gooseberry growers favor the aspiring gooseberry public with their identity, zip code, and list of current varieties!

Gooseberry Fool*

2 cups of fresh gooseberries — cook with 1/4 to 1/3 cup of sugar in 1/4 cup water until tender. Puree in blender, then chill. Make one recipe of boiled custard as follows:

Beat three egg yolks, add 1/4 cup sugar, two to three teaspoons of cornstarch. Scald and stir in slowly two cups of milk. Place custard over boiling water in double boiler. Stir it constantly until it begins to thicken. Cool.

Fold the gooseberry puree into the cooled custard. Top with whipped cream, rum, grated lemon peel, your favorite liqueur.

*Please do not take literally the recipe's name. In cookery "fool" connotes a sweet made of fruit and whipped cream.

propagation

Gooseberry propagation in the autumn is a cinch — take 10 in. - 12 in. long branch cuttings, insert them in the soil with only the top inch or two exposed, tap well all around, and by spring root formation will be well under way. The James and Louise Bush-Brown's *America's Garden Book* (Scribner, New York, 1939) recommends four ounces of complete fertilizer per plant as growth begins, applied six to eight inches from the plant, scratched well into the soil. Nitrogen should be kept to a minimum.

Ground layering is a favorite way in my garden not only with gooseberries, but azaleas, rhododendrons, hollies, and whatever plants are willing to prostrate themselves to insure their genetic continuity. It is a familiar practice that involves anchoring a branch already close — and preferably horizontal to the ground — with soil heaped upon it to weight it down. I place an appropriate size rock over the soil to secure it even more. In this process the large mother plant, and future independent progeny are connected until such time when the rooted offspring branch can be completely severed, and live without its parent's tether.

the porcupine of berries

Despite success in growing shimmering gooseberries with their sublimely spherical form, they nevertheless summon up an irresistable comparison. They are to the world of berries what porcupines are to the world of quadripeds. To embark on a gooseberry harvest is to wish one had selected thornless boysenberry bushes instead. The thorns, the spines, the prickly armour that protect the bush are many. They are closely spaced, surprisingly sharp, and unyielding. Neither garden gloves nor leather gauntlets withstand the piercing pain inflicted on the picker when the plant is molested.

Gooseberry plants lend themselves to artistic espaliers especially on the north side of a wall, but that process involves prolonged physical thorn-in-the-flesh intimacy in pruning, training, wiring. The labor pains might be well worth the travail because up to this time gooseberry espaliers are not ordinary in the garden.

The gooseberry has won its spurs as the outstanding attractive, prolific barrier planting. Planted around a house, their thorns eclipse the conventional burglar alarm system.

potential problems

Leaf spot, cluster cup rust, anthracnose and powdery mildew may infect your gooseberries and scale, magpie moth, aphids and borers may curl the leaves, wilt them, or chew them up, or leave orange patches behind. Up to now, I have had no need for gooseberry medical help. My plants have prospered and have withstood both insects and diseases. Of course, sparrows, bullfinches, black birds, and thrushes love the ripening fruit — it may be well to queue up early.

Recommended Gooseberry Varieties

'Pixwell'
Easily available, healthy, wishy-washy taste.

'Careless'
Early variety; bears large oval fruit, creamy white when ripe. Flavor reputed to be crême de la crême of gooseberry clan.

'Chatauqua"
European type, highly susceptible to mildew, especially when grown in partial shade. Large fruit, taste not inspiring.

'Jumbo'
Heavy with thorns, large fruited, productive, namby-pamby flavor. Delicious cooked.

'Oregon Champion'
Stocky bush, ripens late. Medium-marble sized, green berries. Contains few seeds.

'Welcome'
Lovely rosy-pink at maturity. Good for pies, jellies and jams.

'Poorman'
Gilt-edged quality and sweetness, both fresh and cooked. Will produce two quarts of fruit when five years old. Medium large gooseberries; count on mid-season pickings.

Sources

Burgess Seed & Plant Co.
905 Four Seasons Road
Bloomington, Ill. 61701
Pixwell

Boston Mountain Nursery
Rt. 2 Mountainburg
Arkansas 72946
Champion

Dean Foster Nurseries, Inc.
511 S. Center Street
P.O. Box 127
Hartford, Mi. 49057
Pixwell, Red Jacket, Welcome

Edible Landscaping
c/o Michael McConkey
Rt. 2, Box 343 A
Afton, Va. 22920
Welcome, Champion, Poorman, Clark, Jumbo, Careless

Makielski Berry Farm & Nursery
7130 Platt Road
Ypsilanti, Mi. 48197
Pixwell, Poorman

Plumtree Country Garden
12 West Township Line Road
Norristown, Pa. 19403
(Nursery Not on premises)
Welcome, Jumbo, Whitesmith, Green Hansa, Red Jacket, Friedl, Fredonia, Hinnomakis, Champion

Southmeadow Fruitgardens
Lakeside, Michigan 49116
Careless, Captivator, Canada-0273, Early Sulphur, Poorman, Lapaa Red, Red Warrington, Sylvia, — all available now. For next fall all of the above plus: Glenton Green, Whinham's Industry, Hinnomaki Yellow, Whitesmith

N.Y. State Fruit Testing Cooperative Assoc., Inc.
Geneva, N.Y. 14456
Fredonia, Poorman

●

Évi Bossányi Loeb is an enthusiastic exhibitor at the PHS Harvest Show and the Philadelphia Flower Show. She is a member of a number of local and national horticultural organizations. She gardens at her home in Jenkintown, and her parents' estate-arboretum "Threebrooks" in Bucks County.

A NEW GARDEN TOOL

understanding soil temperature

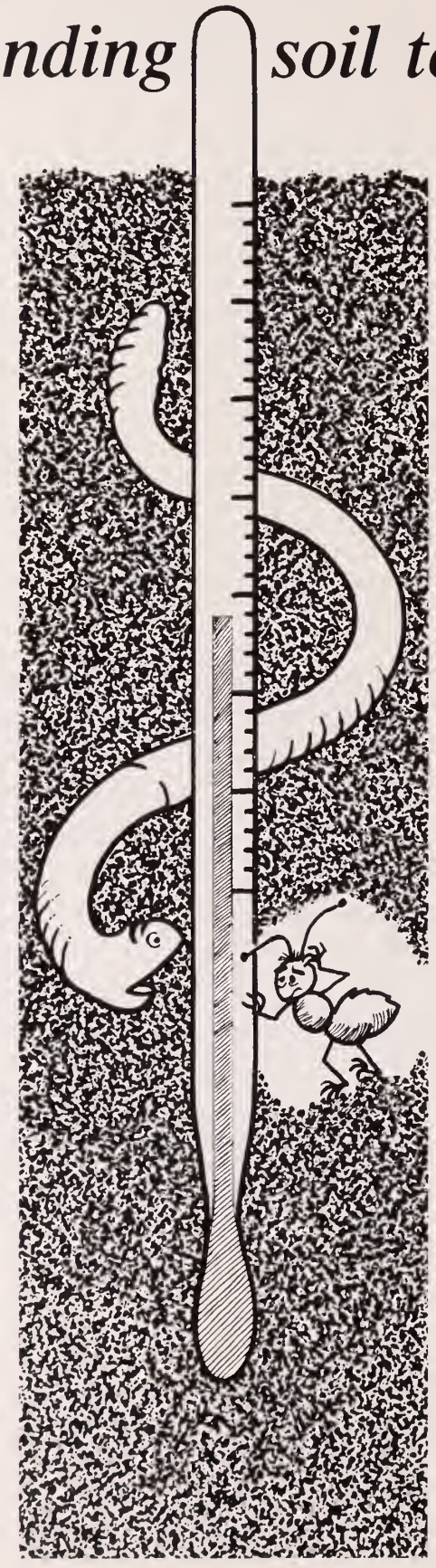
by Jeff Ball

Most gardeners don't give much thought to the temperature of their garden's soil. They keep track of the air temperature, mostly out of a concern for their own comfort. Recent research about the impact of soil temperature on our vegetable patch suggests that gardeners might want to take a closer look at what happens below the soil's surface. Researchers verified that the temperature of a plant's roots and the soil surrounding those roots is more important to the growth rate of a plant than is the air temperature around its leaves. Greenhouse managers have known this for years, but home gardeners are just beginning to get the word.

Most cold hardy vegetables won't even start growing until the soil temperature is around 45°F., no matter what the air temperature might be. In part, it's because the micro-organisms in the soil that produce nitrogen and other essential foods for plants don't begin to function until that temperature is reached. Once a seed is germinated, it has a preferred soil temperature for a maximum growth. While seedlings and maturing plants won't grow very well when it's too cold, it turns out they won't grow very well when it's too hot either.

Warm soil stimulates rapid growth. The biological life of the soil is more active in warmer temperatures, more rapidly converting organic matter in the soil into nutrients that plants need. There is, however, an upper limit to the benefits of heat in the soil. Researchers have found, for example, that corn virtually stops growing when the soil temperature exceeds 85°F. It doesn't die, it just stops growing until the soil temperature goes back down to 80° to 82°F. The ideal range of soil temperatures for best growing conditions for vegetables varies with the type of vegetable. Cold hardy crops prefer a range of 65° to 75°F., while warm weather crops prefer a range of 70°-85°F. (See chart.)

The garden's soil temperature can, in fact, be influenced by the gardener. An important discovery in the last decade is that various mulches have differing effects on soil temperature. Plastic film mulches, clear or black, will raise the temperature of the soil 6° to 12°F. compared to unmulched soil. On the other hand, organic mulches, such as straw, will lower the soil temperature from 8° to 18°F. In addition, gardeners who use drip irrigation systems can further cool the soil in the hottest times of July and August by watering at mid-day.



These developments allow growers to begin actually "managing" the soil's temperatures to get the best results out of a vegetable garden. Warming the soil in early spring allows earlier planting. Cooling the soil in the summer increases productivity. Again warming the soil in the fall further extends the growing season. All told, managing the soil temperature with mulch and drip irrigation throughout the year can increase a vegetable garden's productivity as much as 20 percent.

soil thermometer

The critical gardening tool in this endeavor is a soil thermometer. Although few stores stock these devices, you can order one from a number of gardening catalogs or from the local hardware store. There are two kinds of soil thermometers: a glass one that looks like a large version of the device we use to take our own temperatures, and the version that looks like a meat thermometer with a glass enclosed gauge attached to a metal spike. These devices will cost from $10 to $23 depending on their quality.

Most gardening books don't discuss soil temperatures for anything but germinating seeds. The chart on page 11 gives the optimum growing soil temperatures and air temperatures for maturing plants as well as for germinating seed. You can't do much to control air temperature, but soil temperatures can definitely be managed.

measuring soil temperatures

Soil temperatures should be taken between 4 and 6 inches below the surface of the soil. The best time to take a garden bed's temperature is between noon and 3:00 pm. Remember to shake the thermometer down first if it is the glass model. To know how cold a garden is getting overnight, measure the soil's temperature between 6:00 and 8:00 am. When gar-



photos by Liz Ball

EXTEND THE GARDEN SEASON IN SPRING AND FALL WITH A TUNNEL

Make plastic tunnels using one inch flexible PVC pipe as ribs or supports for sheets of clear plastic polyethylene film (from hardware store). Stick ribs into the ground or set into rigid PVC pipe foundations attached to the inside of a boxed raised bed. Lay the sheets of plastic so they overlap over the ribs. Hold down with rocks or bricks. Be sure to cut 5 inch slits in the plastic film at about 6 to 10 inch intervals for best ventilation.

SOIL AND AIR TEMPERATURE RANGES: FOR COOL WEATHER CROPS

CROP	SOIL GERMINATION TEMPERATURE	IDEAL SOIL TEMPERATURE	IDEAL DAYTIME AIR TEMPERATURE
Beets	40-85	65-75	40-75
Broccoli	45-85	65-75	40-75
Cabbage	50-85	65-75	40-75
Carrots	40-80	65-75	45-75
Cauliflower	50-85	65-75	45-75
Celery	50-70	60-70	45-75
Chinese cabbage	40-85	60-70	45-75
Kale	40-70	60-70	40-75
Kohlrabi	50-85	65-75	40-75
Leeks	40-75	65-75	45-85
Lettuce	40-80	65-75	45-75
Onions	40-85	65-75	45-85
Parsley	50-85	65-75	45-75
Peas	40-85	65-75	45-75
Radishes	40-85	65-75	40-75
Spinach	40-85	60-70	40-75
Swiss chard	35-70	60-70	40-75
FOR WARM WEATHER CROPS			
Beans	60-86	70-80	50-80
Corn	55-85	75-85	50-95
Cucumbers	60-85	70-80	60-80
Eggplant	60-85	75-85	65-95
Melons	65-85	70-80	60-80
Peppers	65-85	70-80	65-80
Squash, summer	60-85	75-85	50-90
Squash, winter	60-85	75-85	50-90
Sweet potatoes	60-85	75-85	65-95
Tomatoes	60-85	70-80	65-80

(Reprinted from *Jeff Ball's Sixty Minute Garden*, published by Rodale Press in 1985)

deners first begin to monitor the soil's temperature, they are amazed at how slowly it changes, compared to the daily fluctuations of air temperatures.

Thinking about soil temperatures changes a gardener's perspective about planting schedules. The growing season does not begin with the last frost, it begins when the soil temperature reaches 45°F. On the other end of the season, the growing period does not end with the first frost. It ends when the soil temperature reaches 45°F. again. Soil temperature becomes the indicator for many gardening activities instead of the calendar.

spring soil temperature management

Black plastic film is the most popular warming mulch. It will warm the soil from 6° to 8°F above an unmulched soil. Clear plastic film is, however, a more effective warming material because it transmits sunlight directly into the soil and holds the heat there, just like a greenhouse gets and holds heat. Black plastic film absorbs most of the sun's rays striking it and transmits heat to the soil much more slowly by radiation. The question for the gardener is: which one to use. The answer as usual is: it depends. The clear plastic can heat things up too much.

The choice of which plastic mulch to use is a function of how far north the gardener lives. In Wisconsin, experiments with clear plastic had soil temperatures going 20° above the surrounding open soil. That same

continued

clear plastic might take the soil up 30° or 40° in Virginia and do more harm than good. When in doubt about using clear plastic, use black plastic to be safe. Black plastic in combination with clear plastic tunnels (see photo and box) will add at least a month to the front end of any growing season.



Soil thermometer

With either kind of plastic mulch, punch lots of holes all over to allow for even draining of water from rain. Drip irrigation systems should be laid under the plastic and it should remain there all season. Clear plastic mulch will let some weeds germinate but when the organic mulch is laid on top in early summer, the weeds will die.

Instead of using dates, soil temperatures can be used to schedule much of the spring planting. A temperature of 40° allows the planting of peas, leaf lettuce, spinach, and Chinese cabbage. The gardener should wait until the soil temperature is 50° to start radishes, onions, onion sets, beets, and parsnips. A temperature of 60° is needed for carrots and turnips. In all cases, germination increases when soil temperatures are up to 65°. At least 65° is needed to seed beans, cucumbers, eggplant, muskmelons, peppers, squash, and tomatoes. Watermelon requires 75° to 80° for good germination. Most of the warm weather plants are better started indoors under lights.

summer soil temperature management

When summer approaches and the soil temperature approaches about 75°F., it is time to lay organic mulch right on top of the plastic mulch. Organic mulches, such as hay or straw, will cool the soil by 8° to 12°F. and chopped leaves will cool things down as much as 18°. Use only chopped leaves that have aged for a year or so because some unwanted allelopathic effects (negative chemical effects) between the leaves and the soil can occur, e.g. black walnut trees and vegetable gardens. Whole leaves mat down and reduce the even seepage of rain into the soil. Grass clippings can also be used if they have not been chemically treated and are put on in layers of no more than an inch at a time. Some gardeners who have access to a paper shredder at work, might use shredded computer printouts, another satisfactory organic mulch.



Plants ready for plastic tunnel in early spring.

Placing the organic mulch directly on top of the plastic mulch rather than directly on the open soil gives you an advantage. The underside of that organic mulch will begin to decompose. If the mulch is in direct contact with soil, the decomposition process can absorb nitrogen from the top inch of that soil, reducing the nitrogen available to the plants. The layer of plastic film between the organic mulch and the soil prevents that problem of nitrogen absorption and slows down the decomposition of the organic mulch.

fall soil temperature management

In the fall, when the soil temperature gets down to about 65°F. again, it is time to remove the organic mulch and let the plastic mulch start warming the soil again. About two weeks before the first frost is expected, erect plastic tunnels again. The combination of tunnels and black plastic mulch allows broccoli, cabbage, spinach, lettuce, and other fall crops to continue producing up to Thanksgiving time.

One trick is to take one or two tomato vines, still heavy with green fruit, gently untie them from their trellis and lay them down flat on the black plastic mulch. By covering these tomato vines, the pepper plants and the eggplants with the plastic tunnel, you can continue to harvest these popular vegetables for two, maybe three, weeks after the first frost. Their soil temperatures are kept high enough to continue to ripen fruit, while the foliage is protected from the frost.

When the soil temperature gets down into the high 40°s, it is time to be making the final harvest and clean up the garden for the winter. In southeastern Pennsylvania, that occurs around the first week of December, a month and a half later than most gardeners wrap up their vegetable patch.

Understanding and using information about the impact of soil temperature on vegetable gardening changes some traditional garden management techniques. Such changes, however, might increase production in the same garden space, while requiring little more time. Here is one area where agricultural research helps backyard farmers. Between the drought, the bugs, and never having enough time, we need all the help we can get.

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Jeff Ball is a writer and suburban homesteader in Springfield, Pa. His latest book is *Jeff Ball's 60 Minute Garden* published by Rodale Press, 1985.

THE OLDEST SEED COMPANY IN AMERICA

by Amalie Adler Ascher

Traditions die hard in gardening. Give a grower a variety that performs well, and chances are, he'll remain true to it to the end. It's that sort of loyalty that's kept D. Landreth Seed Company—the oldest in America—in business these many years.

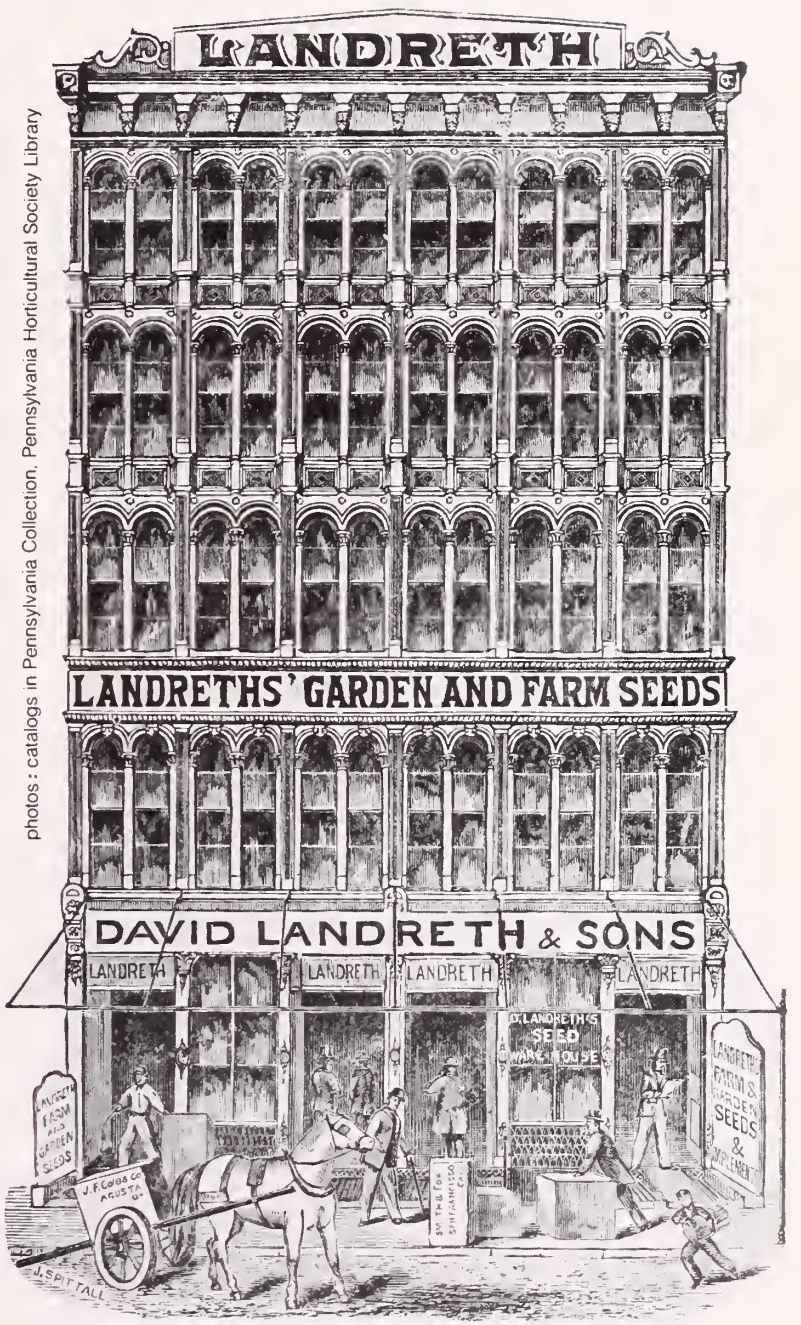
When Ben Goldberg bought the Pennsylvania-based firm 18 years ago, he moved it to Baltimore, his home town. No stranger to the seed trade, Mr. Goldberg entered it 53 years ago in founding the now extinct, Cover Lawn Seed Company. Five years later with three partners, he formed the Druid Hill Park Seed Company.

It was hard trying to establish a new concern, he remembers, sitting at his desk in his office at the company's block-long warehouse at 180-188 West Ostend street. When he'd approach dealers with his product, they'd say they never heard of it. Having thus experienced what it was like to be the youngest seed company, Mr. Goldberg jumped at the opportunity to acquire the oldest one.

David Landreth, the company's founder, say early accounts, was one of the first, if not the very first to inaugurate the work of seed growing as a business in this country. Upon immigrating to Philadelphia from London, he set up shop at what is now 1210-1212 Market street, on January 7, 1784. The place then was called High

continued

photos : catalogs in Pennsylvania Collection, Pennsylvania Horticultural Society Library



Landreth's Display of Garden Seeds at the Atlanta Exposition 1881-82

THE OLDEST SEED COMPANY IN AMERICA

continued

Street and located well out in the country.

The entrepreneur's first seed farm was based at 12th and Filbert streets, and on opening the Landreth Nursery and Seed Gardens at 22nd and Federal Streets, he was said to have created a showplace in a class with famed Bartram Gardens, whose originator, John Bartram, was a close friend of David Landreth's.

The prominence of Philadelphia in the seed-growing industry, in fact, was noted in a 1792 Landreth's catalog. "Philadelphia," the publication said, "has ever been considered the centre of the Seed Trade in the United States; it was the first to develop it, and has always possessed the finest vegetable market in the Union."

The Landreth family—of which about 1,000 members survive today, until purchased by Goldberg, operated the business for almost three centuries in a direct line from father to son for five generations—made history in other ways. David Landreth, Jr., was a founder and for eight years an officer of the Pennsylvania Horticultural Society, the oldest of all such societies in the United States.

U.S. Army Captain, Burnet Landreth, of a later generation, was four times a vice president of PHS. In 1876, he was named chief of the Bureau of Agriculture of the U.S. Centennial International Exhibition at Philadelphia. Distinguished for service in the campaigns of Antietam and Gettysburg, to name two, this Landreth patriot was four times president of the Pennsylvania Forestry and as many times a member of the executive committee of the Pennsylvania State Agricultural Society. He was also the originator and, for 35 years, president of the Association of Centenary Firms of the United States, at that time considered the most distinguished commercial society in the United States. The society comprised 86 firms, all 100 or more years old and still managed by the direct descendants of the founder. In a September 19, 1924 issue of *Seed World,* Captain Landreth, then 82 years old, was called "the dean of American seed growers," by virtue of being "the oldest American seedsman in the country who is actively engaged in the seed business."

This Landreth, too, was accorded international recognition, receiving appointments of honorary membership in the National Societies of Japan, China, Mexico, Brazil, Chile, France, Hungary, India and the Royal Societies of London and Sweden.

On the roster of the company's first customers were some of the leaders of the day. They included, besides Joseph Bonaparte (Napoleon's brother), United States presidents, Thomas Jefferson, John Adams and George Washington, who received a 30-day extension to pay his bill. President James Monroe bought linden, spruce, hemlock and magnolia trees from the firm in 1820, (in those days it carried nursery stock as well as seeds), and planted them at Independence and Washington Squares in Philadelphia. Other of the company's trees can still be found growing at Wahington's home at Mount Vernon and along the streets of the nation's capitol where they took root 200 years ago.

That Landreth has been at the forefront of the garden trade is demonstrated in other ways. It brought spinach to the New World and developed the august Bloomsdale variety, which was named for Bloomsdale, the firm's farm in Bristol, Pa. The headquarters was moved there in 1847 on land given to the family by Grace Presbyterian Church, built by John Wanamaker around 1872. In 1798, Landreth introduced the zinnia from Mexico.

to the north pole

Records show too, that when General Greeley took samples of Landreth seeds in 1881 on his expedition to within 500 miles of the North Pole, some radish seeds brought back and planted, in 1905, germinated despite having been subjected to temperatures of 60 to 70 degrees below zero for 16 years.

Landreth still offers more than 50 of the varieties it carried almost two centuries ago, among them Red Valentine Beans and French Breakfast Radish. Ah, those were the days. A page from the 1832 catalog lists long blood beet at 12½ cents an ounce and long prickly cucumber (best for pickling) at a quarter for the same quantity. In 1799, nobody thought much of watermelon, so the list from that date mentions only one. Landreth's 1985 catalog, in contrast, contains 11 varieties including Sugar Baby, a fairly recent introduction.

Embracing the old and the new, in fact, is an earmark of Landreth, which prides itself in catering to growers still tied to the varietal preferences of their parents and grandparents. Goldberg can name customers still clinging to the same vegetables after 50 years.

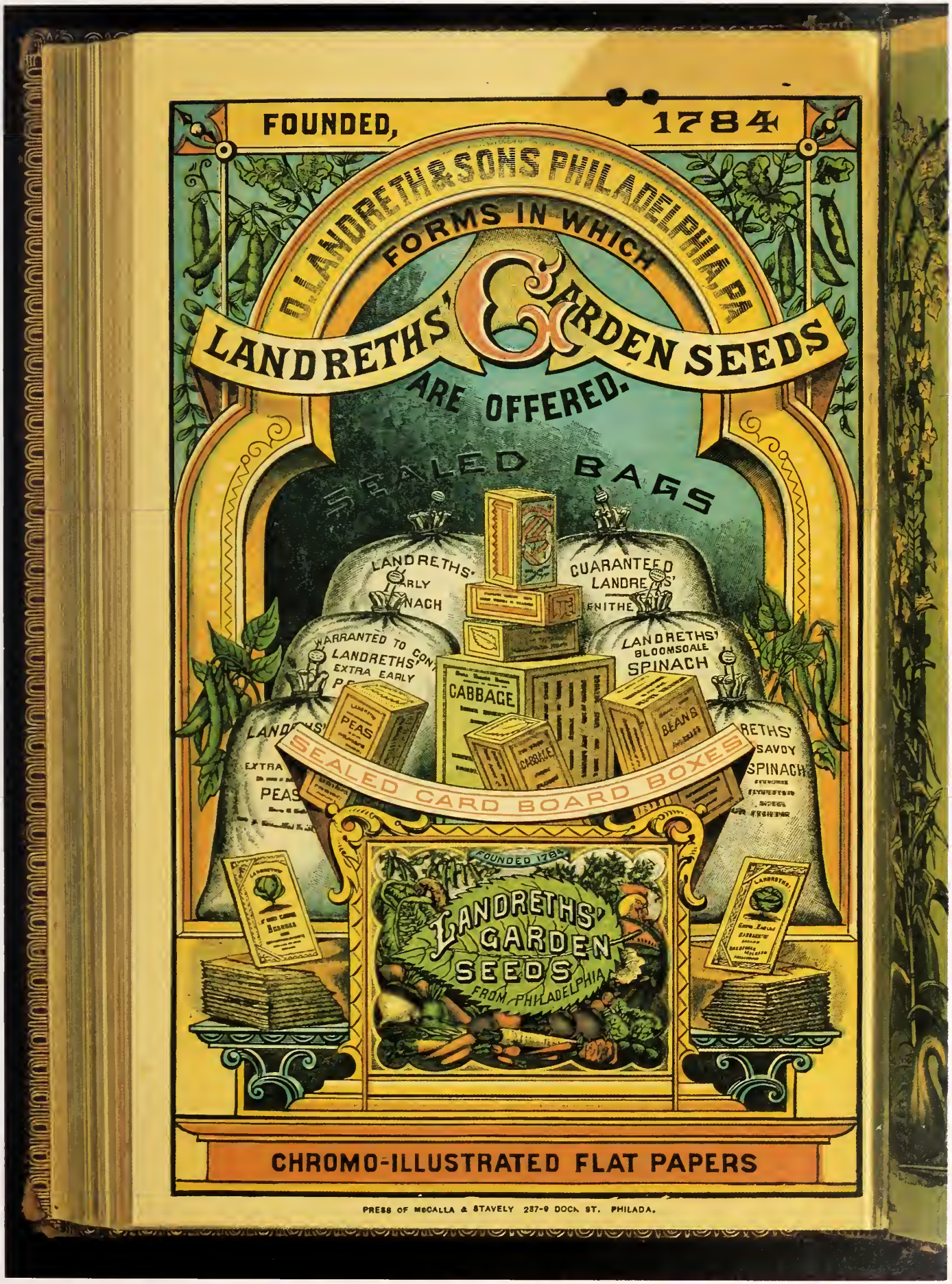
But the veteran seedsman serves progressive-minded gardeners too. For them, for example, there's the revolutionary Sugar Snap peas, which Goldberg says, outsells Dwarf Grey Sugar, the original snow pea and Sugar Snap's forerunner, by about five times. Other signs that the firm keeps up with the latest, are its offerings of the new Mini Jack pumpkin and Janie marigold, a gold medal All-America Selections winner in 1980.

The firm offers a well-balanced menu in general; in some cases the fare is difficult to obtain elsewhere. Not many catalogs, for example, list Joy stringless bush bean that bears all season long, or Daisy, another bean, that's rated excellent for fresh eating, canning or freezing, and which sets pods on top of the bush for easier picking.

As an added feature for attracting customers, Landreth seed packets provide care and harvesting tips on the back not to mention directions for planting. Some packets, like those for Dwarf Long Green Pod Okra and Detroit Dark Red Beet, contain kitchen tested recipes as well.

Reflecting on changes in the seed business, Goldberg names corn as the most significant. Hybrids have replaced open-pollinated types in popularity by a wide margin, and whereas Golden Bantam used to be a hot seller, calls now are for Silver Queen and White Lightning. The new breeds of corn, Goldberg observes, are earlier and higher in sugar content. Corn is getting sweeter and sweeter all the time, he notes, almost too much so for his taste. Like

continued



From Landreth's Rural Register and Almanac 1882

THE OLDEST SEED COMPANY IN AMERICA

continued



some of his customers, he's still partial to the old-fashioned Stowell's Evergreen, which the catalog says is the most reliable of all varieties of corn.

Beans, Goldberg adds, are the most popular of all the company's offerings. So if a new one comes on the market, he's not apt to turn it down. That's not the situation with tomatoes, though. There are too many of them around already, and Goldberg doubts the public wants more.

Although buyers today consistently choose hybrids over open-pollinated varieties, when it comes to a seed company, Goldbeg believes they'll view with confidence the oldest one in the country.

Landreth seeds are available from retailers and by mail order. For a catalog, send $2 with your request to D. Landreth Seed Co., 180-188 W. Ostend Street, Baltimore, MD 21230.

Other Landreth Firsts

- Published the first horticultural journal in America.
- Pioneered the first trial grounds in America.
- Began experiments with sugar beets in 1873, which have helped to develop one of our greatest industries.
- Offered one of the oldest named varieties of peas, known as Landreth's Extra Early.
- Supplied the British Government with long-staple cotton seed, which started Egypt's cotton industry.
- Developed in 1811 the first truly white variety of potato (they had previously been yellow), and in 1820, introduced the tomato to garden cultivation.
- Carried among its early novelties, the first listing of cantaloupe seed grown from a source imported from Tripoli.

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Amalie Adler Ascher is a frequent contributor to *Green Scene*.

Xanthorhiza simplicissima:

A HANDSOME NATIVE GROUNDCOVER

by Claire Sawyers

If you don't already know *Xanthorhiza simplicissima* or yellowroot, it's a plant you're apt to pass over when you first chance upon it. Its unassuming personality, however, will grow on you given the opportunity to better observe it. Then you may be tempted to campaign for it in more gardens.

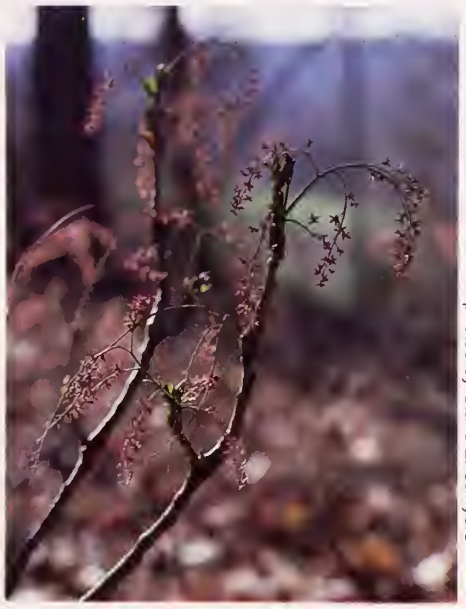
Its flowers certainly can't be accused of "jumping out at you," not even in the most hyperbolic plant catalogs. Their overall garden effect is next to nil, but to the initiated, the flowers might seem like an intentional understatement, announcing the arrival of spring right along with the emphatic declarations of star magnolias and snow azaleas. I can imagine the Japanese praising it in haiku or displaying it in rustic ceramic vases in tea houses, even though yellowroot is all-American.

Buds at the tips of coarse and irregular bare stems begin to expand in March, and out push two or three strings of very small purple flowers. By the time the petals widen, forming dainty stars dotted with yellow anthers, the whole flower cluster has become a pendulous spray hanging below the leaves, which are then just beginning to test the brisk spring air.

This plant's foliage texture combined with its overall habit and lenient growth requirements make it worth writing about and worth growing: clusters of neatly cut, compound leaves grouped at the end of suckering stems open into bright green umbrellas creating a shrubby, large scale groundcover that performs well in shade and sun. The plant spreads into a network of unbranched or sparsely branched stems varying in height, but generally 2 to 2½ feet tall. The handsome foliage, which has been compared to that of celery, parsnip, and parsley, remains clean and refreshing all season, eventually turning to a reddish bronze and then golden yellow, and finally falling in the winter. Last year's long mild autumn baked yellowroot to a sensational color, and I continued photographing it into December.

At Mt. Cuba, near Winterthur, *Xanthoriza* has been used in numerous spots in the naturalistic woodland gardens of Pamela Copeland. It's planted in complete shade as well as sunnier spots along paths and roadways in low maintenance areas. Its habit tends to be tighter and denser in sunnier locations, but even in shade, it grows thick enough to keep out weeds, especially with the added help of a mulch. Mt. Cuba gardeners have found it easy to grow, easy to divide and to transplant. The only problem they've encountered is that the mice eat the roots of new transplants.

Xanthorhiza is appropriate for wildflower gardens and naturalistic landscaping, and it can also be successfully incorporated into landscapes more formal than Mt. Cuba's. For example, at Swarthmore College, the corner of a dormitory has been softened with a bed of trees underplanted with *Xanthorhiza*. In a more residential setting, it joins other shrubs and bulbs in a border of the Wister Garden, also on Swarthmore's campus.



photos by Claire E. Sawyers

Spring



Fall

The roots for which the plant is named (*Xantho* is Greek for "yellow"; *rhiza* means "root") show a bright yellow inside and they are popular with humans as well as mice. According to Douglas Elliott, author of *Roots: An Underground Botany and Forager's Guide* (Chatham Press, Old Greenwich, Conn. 1976), *Xanthorhiza* roots can provide relief from colds, stomach and throat disorders and are still highly regarded in many areas in the South as a remedy. The plant naturally grows through most of the southern states, reportedly ranging from Florida and Alabama north as far as New York. Abundant in Virginia and North Carolina, it takes to damp woods. Elliott also reports that Indians used the yellow pigments in the roots and stems to produce a desirable dye. (If you scratch the bark off a stem, the bright color becomes obvious.)

There is only the one species of *Xanthorhiza, X. simplicissima,* but as a member of the buttercup family, its kin include many well known herbaceous perennials such as columbine, meadow-rue, marsh-marigold, helebore, and snake-root. Like marsh-marigold and hellebore, yellowroot blooms early in the year and like the others, it has cut leaves, but it stands apart from all these by its woody character, a trait it shares with some of the *Paeonia,* another group of plants in the same family. And the deciduous stems do provide subtle winter interest. The suckers lean or curve together as waves in established plantings and reflecting light off their silvery tan bark, they add a sculptural quality to the garden.

Yellowroot doesn't flaunt showy flowers or fruit, which explains why it's not readily available in the nursery trade, but it nicely solves the dilemma of some difficult design areas with its combination of qualities. It contributes to the garden without having any serious pest or litter problems and requires little or no maintenance. That makes this seldom grown native a good groundcover and a worthy garden plant to add to the gardener's repertoire.

Sources

The Scott Foundation Associates 1985 Fall Plant Sale (September 28)
Swarthmore College
Swarthmore, PA 19081
(215) 447-7025

Princeton Nurseries
P.O. Box 191
Princeton, NJ 08542
(609) 924-1776

Woodlanders, Inc.
1128 Collecton Ave.
Aiken, SC 29801
(803) 648-7522

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Claire Sawyers works at Mt. Cuba Center in Greenville, Delaware and enjoys writing about horticulture in her spare time. She is currently working on two handbooks for the Brooklyn Botanic Garden: she is guest editor for one on Japanese gardens and is updating *A Guide to American Public Gardens,* using her master's thesis as a source for the expanded information.





Winterscape by Ann L. Reed won Best of Show in the Pennsylvania Horticultural Society photo competition.

Some Unusual Foliage Plants



photos by George Elbert

No matter how large our windowsills, room for plants in natural light will always be less than we wish. The challenge is to fill the precious space with especially choice plants, ones that also are worthy to be moved to mantels and tables for enjoyment and admiration at close range.

Considering the popularity of foliage plants one would reasonably expect shops to carry a great variety of attractive greenery. On the contrary, they usually offer a distressingly short list of large display plants whose principal merit is their ability to survive in low light. They can be placed back from a window where they fill the interior decorative role of living furniture. The smaller ones, better suited to a windowsill, are mostly juveniles of the same kinds, leading a novice to conclude that no others can be grown successfully indoors.

To escape from these stereotypes one must visit or consult the catalogs of that handful of adventurous nurseries that owe their survival to an increasing number of adventurous amateurs. It has been known for a long time that many tropical greenhouse plants flourish in a normal home environment. More recently a few hardy species have, unexpectedly, proved almost equally adaptable. There exists, thus, a profusion of quite fabulous foliage plants that await anyone willing to expend a small amount of effort to track them down; plants of every size and description for every indoor environment.

Below I list a few of the many windowsill foliage plants in the hope that they will spur you to look for all the others. They are easy to grow and each possesses some unusually attractive feature. All are listed by at least one well known nursery. They have been chosen not because they are rare or superior, but rather, because they are good examples of charm on a small scale and of larger ones that, with the simplest of means, can be kept within the space available.

Acorus gramineus 'Variegatus' is a lovely dwarf relative of our native Sweet Flag, *Acorus calamus*. The unusually broad, branched rhizome seems to flow out of the soil, like a centipede emerging from its hole, arching itself onto the surface to which it clamps with all the tenacity of a limpet. From the thick, short, closely set branchlets rise tufts of stiff, narrow, six to eight inch grassy leaves striped half green and half white. At first they form a semicircle; later, as the rhizome creeps forward, this becomes a double row with outward slanting sides, rounded at the leading end, creating a powerful impression of vegetative vigor on a small scale.

Semi-hardy, it does best close to an east or west window and will manage in a north one. Pot in a mix of three parts peat and two parts sand. Keep really wet at all times; you can safely leave it sitting in water. We use small round pots to start with and later switch to shallow rectangular shapes. Fertilize with high nitrate formula a couple of times in summer. Protect as much as possible from the worst heat of July and August by opening the window or directing a fan onto it. Mites are an occasional nuisance but, fortunately, the leaves are little damaged by standard miticides.

To propagate cut the leading part of the



Acorus gramineus 'Variegatus'

for the Windowsill

by George Elbert

rhizome into sections with branchlets and roots. The remainder of the rhizome will split and continue its progress. Growth is very slow. Clip or pull out the occasional browned leaves.

Arundinaria pygmaea is a very small member of an American and Asiatic genus of tropical grasses, called Bamboo Cane, amongst which is the 40 ft. Tonkin, famous, before it was superseded by graphite, as the finest material for fishing rods. This one is ridiculously dwarfed; only eight inches high, duplicating its huge relatives and spreading into little groves. Of easiest culture, it looks perky in a shallow, ornamental pot and is perfect for displaying on a side table in the evening.

The dense tufts of very thin, round, grassy stems are topped with clusters of blue-green, narrow, opposite leaves up to two inches long. The grove is somewhat flattened on top and the stems are bare, except for whitish sheaths, so that one can see between them.

Set in a shallow, round ceramic pot, allow room to spread and pack tightly with house plant mix. Exposing the mound of grassy rootlets at the top improves its appearance. Keep in filtered sun or under artificial light (150 foot candles are sufficient) and evenly moist at minimum 55°F. Avoid direct sun. Misting once or twice a day prevents tip browning.

Gradually new stems will grow around the periphery, increasing the diameter of the clump until it reaches the rim. You can then move the whole mass to a wider pot or trim off a piece of the clump and pot it up separately. A friend will appreciate it as a gift. Mites sometimes attack bamboos but I've not had any on this one although there are always some lurking in any large collection of house plants.

Begonia aconitifolia — Foliage begonias are notorious for succumbing indoors to fungus diseases and aerial pollution during the heat of summer. The majority require either a sharp drop in temperature at night, as on the west coast or humid, warm terrarium conditions. A few are rampant growers that adapt to extremes but are quite uncontrollable for the average indoor gardener. These assertions are debatable, but I have observed that my windowsill gardening friends are constantly replacing their plants.

As I have always valued begonias very highly for their varied and splendid foliage, I sought at least one that I might recommend unconditionally for windowsill culture. This led me, eventually, to *B. aconitifolia,* an obscure species, occasionally used in hybridization but not at all in the good graces of collectors. I have grown it for at least 10 years and distributed so many rooted cuttings that puzzled nurseries now receive inquiries for the Elbert Begonia.

Native to Brazil, it is a cane, 'Superba' type. As illustrated in *Begonias* Mildred L. and Edward J. Thompson, Times Books, 1981, New York, it has widely separated, narrowly lobed leaves. My plants have had broader leaves, set much closer together, probably because they have been pruned.

The leaf blades are unevenly divided, with two deeply cut lobes on one side and three on the other. They are too broad to be called Angel Wing in shape as length and width, maximum seven inches, are almost the same. The surface is dark green, liberally splashed with silver streaks and spots. Petioles and veins are pink.

Grown with several sturdy canes to a natural height of two and a half feet or more, it becomes a column of classically designed, sparkling, overlapping foliage. The flowers are said to be white but I've never seen them; the foliage is what counts. If it is too big for your space you can trim the canes at any time to the height you wish. The nodes will produce leaves and branches so that they, too, can be cut back repeatedly.

B. aconitifolia will grow in a north window; provide partial shading in other exposures. Under artificial light 400 foot candles are ample. It tolerates 100°F. as well as 50°F and does not require a drop in temperature at night. High humidity is unnecessary; the leaves will be a bit more lush at 40% or

continued

Arundinaria pygmaea





Begonia aconitifolia

As I have always valued begonias very highly for their varied and splendid foliage, I sought at least one that I might recommend unconditionally for windowsill culture. This led me, eventually, to B. aconitifolia.

Carex morrowii





Ehretia microphylla

higher. Brown edging is very rare and old leaves are replaced by new ones.

Pot in ordinary house plant mix with the addition of one tablespoon crushed eggshell to the quart. Use an azalea pot as the roots are shallow and the plant spreads by means of thick, short rhizomes. Fertilize with mild dilutions of 20-20-20. Keep moist at all times but do not allow the pot to stand in water.

When you do not prune, the lowest leaves will eventually die off. So plan to propagate in time. Simply take tip cuttings, slice any larger leaf horizontally in half, dust the stem tip with hormone powder and plant in moist, sterile medium. Roots form in three to four weeks at 70°F in filtered light. A transparent covering speeds the process. I have never discovered insects on my plants nor any tendency to disease.

A pleasing and useful feature of this plant is its tolerance of dwarfing beyond any begonia I know. Start trimming when the first stem is no more than six inches high by nipping the new leaves down to the node. When it branches, allow them to grow two nodes, then cut off the second one. Keep repeating the process and the stem will thicken until it is an inch or more in diameter, becoming especially bulgy just above soil level. The continuous pruning also encourages the rhizomes to send up new stems close to the first one. Trim these back in the same way.

Within a year the plant will look very different from other begonias; two or three thick stems joined by a continuous tuberous swelling at the base supporting a canopy of leaves at a height of no more than eight inches. The leaves will be somewhat smaller and less jagged and the variegation becomes an even dusting of silver spots. Remove from its pot, trim the roots and replant it in a shallow bonsai pot. There it will look its best and last, with occasional trimming, for years. The plant illustrated is six years old; no masterpiece, but an interesting and attractive way to grow it in a small space.

grasses

I offer no apologies for suggesting grassy plants of small size. They look quite stylish, attract attention by their neat habit and are, altogether, fine for a small pot or dish garden if periodically divided.

Carex morrowii 'Variegata' is a dwarf Japanese sedge that grows as a mound of delicate, completely arching, crowded, very narrow leaves. The best clones are nearly entirely white with just the thinnest of green lines along the edges. It is rated hardy as far north as Zone 5 yet has proved easy and durable indoors. The appearance of extreme tenderness is belied by its sturdy performance.

Grow in a small, neutrally colored pot, planted in peaty, acid soil. Keep continuously wet; setting in a saucer of water will do no harm. Place in partial but not full sun, at least in summer, for the leaves will turn brown prematurely. Fertilize at most a couple of times in summer with a mild dilution of high nitrate formula. Place so that it wil have some coolness at night in summer. In winter it will tolerate sun and should be close to the panes where the temperature, at least part of the time, touches 50°F. or lower. The plant is so exquisite that it deserves your attention occasionally for a few minutes to pluck out leaves that have died of old age.

Though not quite so precious dwarf *Ophiopogon japonicus,* mondo grass or lily turf, which belongs to the Lily Family is also lovely. There are variegated cultivars.

shrubs

Philippine tea, *Ehretia microphylla,* is an elegant small shrub that does well on the windowsill with a minimum of problems. In the literature it is described as attaining 12 ft., which is almost unimaginable as the small leaves seem to suit a plant of much more restricted dimensions. If permitted it certainly grows fast. A friend recently displayed an 18 month old, 2 ft. specimen that was quite handsome. As long as it is happy in a small pot, however, I think most growers

will want to keep it dwarfed.

It is woody and very much branched, the leaves, no more than three quarters of an inch in length, occurring in clusters at the joints. They are shield shaped, broader at the apex with three shallow lobes. The color is very dark, oily green. All through the year it produces small numbers of little white flowers followed by round red fruits, the size of a No. 1 sieve pea, that drop after a few days. They are usually viable but, if not, cuttings of new growth root readily in moist house plant mix.

To grow larger size plants, provide a house plant mix, filtered sun or 300 foot candles of artificial light, regular watering, and fertilizing once a month with a high nitrate formula. Keep the temperature above 50°F. The only problem is with mealybugs whose young find a haven in the corky joints. Spray weekly with Safer Agri-Chem's Insecticidal Soap until they disappear.

In order to stabilize the plants give a minimum of fertilizer (no more than four times a year) and trim new growth. The specimen illustrated has been living in small quarters for four years while I keep exposing more and more of the root; that slows growth even further but causes no other apparent harm. Whenever the branches put out new growth I cut them off and propagate them, always keeping a few plants for myself in case the mother plant reaches the end of its rope. I should think that *Ehretia* might be trained as classic bonsai and probably is. Few plants can take as much punishment indoors.

According to all the canons of bonsai Kingsville Box, (*Buxus microphylla* 'Compacta'), should find the warm temperatures in a home quite intolerable. Not so, as long as it receives some respite from extremes.

This smallest of boxes grows with legendary slowness and possesses a short, woody trunk when it is only three inches high. The spread is somewhat more, consisting, until it is properly trimmed, of a tangle of branches covered with small, oval green leaves. We had one plant for eight years and lost it on vacation. Its replacement is still getting acclimated. It should eventually reach six inches in height.

In a little pot with house plant mix, preferably containing sand instead of perlite for the sake of appearance, it lives happily in any exposure as long as it is kept moist and in filtered light. As a hardy perennial it suffers most in winter from indoor warmth. Just keep it close to the window panes where there is a good temperature drop at night. Fertilize once a month in summer with high nitrate formula and treat once a year to a meal of chelated iron. It makes a nice miniature for show.

Ming or parsley aralia, *(Polyscias fruticosa),* is no stranger, yet it is not as common as it deserves to be. In addition to an almost unique ease of culture it is versatile, capable of becoming either a massive ten foot shrub or a ten inch miniature tree depending on how you handle it.

Buxus microphylla



I usually grow *P. fruticosa* 'Elegans' whose main stem is corky brown and has numerous green branches growing vertically parallel to it, distinctly jointed and never quite straight. The branches are thickly clothed with compound leaves consisting of dark green, fan-shaped leaflets, cut and crisped in jagged segments, much like parsley. When leaves drop, new ones appear with startling speed, so that the greenery is retained on the lower parts much longer than on most shrubs.

In my opinion a large loss of leaves occurs only when watering is neglected, and I judge them to be among the best of the tall plants for any location in the home or, for that matter, in commercial plantscapes. They are particularly suited to modern interiors with simple lines, as they provide an exotic, oriental effect perhaps because of a resemblance to certain trees in Chinese and Japanese landscape paintings. As window plants they present no difficulties at all.

They grow rapidly in packaged house plant soils, are not sensitive to heat and

continued



Polyscias fruticosa

Murraya paniculata





Phyllanthus angustifolius

tolerate coolness down to 50°F. A north window or 100 foot candles fluorescent light are sufficient illumination. In other exposures protect from direct sunlight. Even moisture and occasional feeding with a balanced fertilizer complete their needs. To propagate, merely take tip stem cuttings and place them in water. Adequate roots develop in two to three weeks at 70° or higher. Insects have never attacked my plants and they have suffered from none of the common diseases. If you are looking for a carefree house plant, this is it.

I also know no other plant that can be pruned as drastically and crudely yet grow back to an attractive shape within a short time. Start the process when the plants are no more than a few inches high. More branches are produced and the lower parts of the main stem become thick and gnarled so that they appear to be of considerable age.

As height increases trim more judiciously, cutting back only the longer, fast growing branches. If you are persistent, petioles become shorter and the size of the leaf blades is reduced; growth slows down and the greenery becomes more concentrated making it possible to shape the plant with less frequent attention.

Depending on the degree of trimming, you can maintain your plant within any part of the range between 10 and 20 inches for a very long time; moreover the shape will be much slimmer and the branching less confused than is the case with specimens allowed to grow too freely. Once the plant is stabilized it can be taken out of its pot, most of the finer roots trimmed away and replanted in a small, shallow bonsai or art pot so snugly that little or no room is left for further growth. Compact the soil firmly. With growth slowed down it becomes unnecessary to trim as frequently. Eventually you may wish to decant your plant again, fill the pot half full of soil and replace with some of the roots exposed. This is especially attractive because the stilt effect complements the thickening of the stem.

Gradually, with a pointed stick, loosen the soil over and under the two or three principal roots. Leave in the pot for a year, watering frequently. Move to a pot that is a little larger. The roots will have thickened while the top growth will be in proportion to them and to the container. In this state it can remain for a further number of years.

Passing a framing shop a number of years ago I was enchanted at the sight of a shrub in the window that had compound leaves of one inch, shiny green, elliptical leaflets that contrasted with a pure white stem and branches. Later, while spending a vacation in Tobago, I saw it as a big shrub with many stems growing from the base and always with a few flowers. The latter were like orange blossoms and emitted an intense, pleasing fragrance. A number of seedlings were growing nearby; I brought some home with me. I soon found the name, *Murraya paniculata,* and also, to my chagrin at my ignorance, that a number of exotic nurseries had been listing it for years. Meanwhile my seedlings have done very well and, as small plants, are far more decorative than the full grown shrub I had seen. I have been able to check with other growers who have confirmed my satisfaction with its performance.

Murraya paniculata originated in South East Asia and as a true tropical does not need the cool culture of most other indoor citrus; a minimum of 60°F is advisable. It requires frequent watering. Fertilize with a high nitrate formula at one quarter the recommended strength once a month.

It can be maintained very well in filtered sunlight or 300 foot candles for 14 hours daily. It blooms best in this low illumination. Keep trimmed to encourage branching and occasional offsets. Branch cuttings root in moist mix under cover at minimum 70°.

In the huge and varied *Euphorbiaceae* family *Phyllanthus* is a genus of 650 species of shrubs and trees spread all across the tropical and subtropical world. Jamaica is the home of several, including *P. angustifolius,* which is an excellent and unusual looking windowsill plant. It belongs to that group of odd species (for instance asparagus ferns and *Ruscus*) whose seeming leaves are really modified branches (cladophylls).

P. angustifolius has a straight, woody stem surrounded by the spiralling branches. An evidence that they are truly branches, not leaves, is the tip of the stem, which is blunt and covered with brown scales, the branch buds. Two or three layers of branches emerge simultaneously around the tip; watching them grow to full size is fascinating.

Each branch is compound, consisting of up to 10 alternate branchlet-leaves four inches long and a tip "leaf" reaching a foot and extending beyond the body of the plant. Both are less than a half inch wide. They are dark, rubbery green, with angled veins that

end in little indentations and from these, at any time of year, dangle little pink flowers. On each "leaf" they all come out at the same time, like little bells all in a row.

Pot in a mix of two parts peat moss, one vermiculite and one gritty sand. Expose to partial sun or 400 foot candles artificial light for 12 hours daily. Minimum 60°F. Being a heavy drinker a daily watering is usually required. It should be grown indoors no higher than two and a half feet. Beyond that the stem must be supported. To propagate either use the top of the stem or make mallet cuttings (thin sections of stem with a compound branch attached). These will root at 75° or higher under transparent cover in moist, sterile medium.

trees

Tsukumo cypress, *Chamaecyparis pisifera* 'Tsukumo,' is a dream of a miniature tree, so shapely if well grown at the nursery that trimming or training seems superfluous. It should be unhappy indoors since it is so hardy, but it isn't. In all the time I have grown them they have rarely displayed a yellow leaf. The ball of miniature, flattened foliage supported on a woody, proportionate trunk is so solid that the branches within are invisible. Thus, for an average grower, it offers the effect of a bonsai without pruning.

When the plant illustrated arrived, the roots were so large that they had to be trimmed in half to fit in the pot. Later on I will cut them back still further so that they will fit into a somewhat smaller size, better proportioned, container.

Treatment is exactly the same as for the Kingsville box but I must say that of the two the cypress is the more impressive.

vine

Anthurium polyschistum, also known under the name of 'Putumayo,' comes from tropical Colombia and is a most unusual small vine that can be maintained as a shrub. The thin, juicy stems are pinkish, producing upright, palmately compound leaves on thick, three inch long petioles. The seven to nine leaflets, three to four inches long, are arranged in a near circle, are narrow, undulating and bright green. In mature plants all the dimensions are much bigger but in a window and with snug potting it is easily dwarfed. I do not allow it to grow higher than 12 to 15 in. The bushy look is helped along by frequent offshoots.

Give normal *Anthurium* culture with temperatures not below 60°F and constant moisture. It is a low light plant that grows well in a north window and should not be exposed to much sunlight. Propagation is by division and cuttings that put out roots rapidly in water.

It is surprising that this extremely pretty and graceful plant is not more common. Presenting none of the problems of most other *Anthurium,* its appearance is altogether different from most members of the Aroid family.

Sources

Sources for these plants are in some instances not common but they turn up regularly in nurseries growing tropical exotics. My principal sources are:

Country Hills Greenhouse, Route 2, Corning, Ohio 43730 Cat. $2.00

Brussel's Bonsai Nursery, 305 Colonial Road, Memphis, Tenn. 38117. Catalog 25¢.

Glasshouse Works, Stewart, Ohio 45888-0097. Catalog $2.00.

Logee's Greenhouses, 55 North Street, Danielson, Connecticut 06239. Catalog $3.00.

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George Elbert is author of a number of books about houseplants including *The Miracle of Houseplants,* published in 1974 by Crown Publishers, (new edition 1984). He has written & published many articles on the subject, and is a frequent contributor to *Green Scene.*

Chamaecyparis pisifera 'Tsu Kumo'





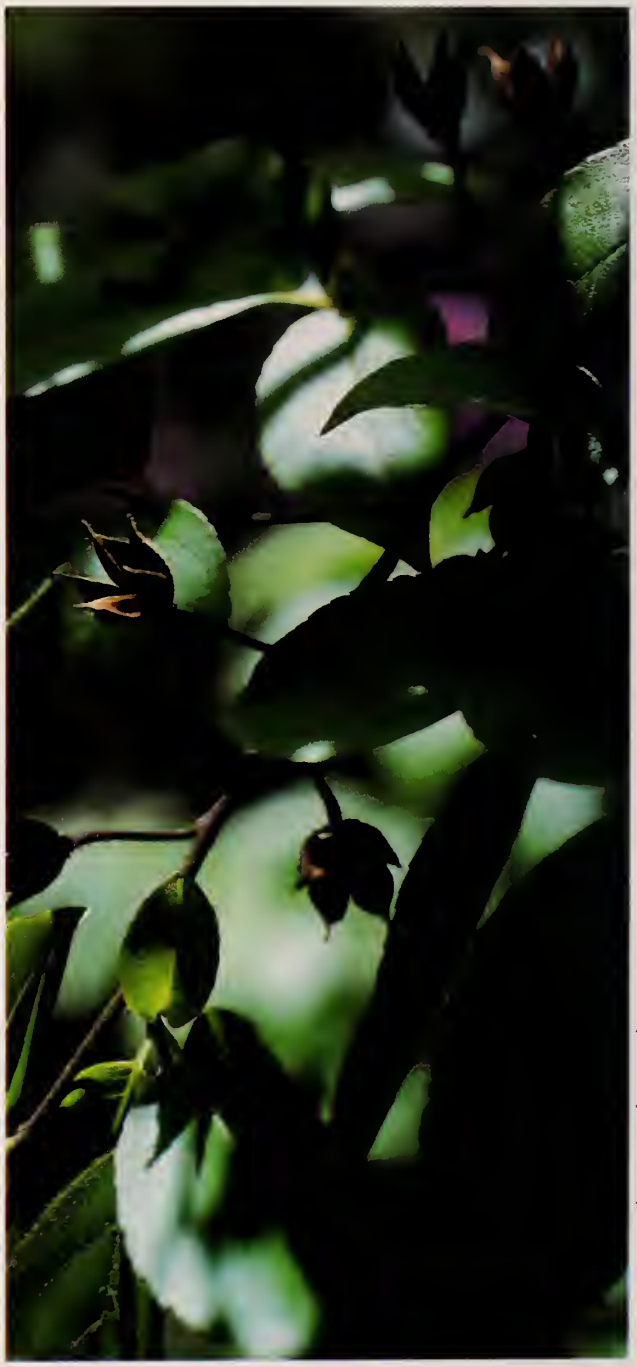
Anthurium polyschistum

MASTER GARDENER, T.V. PALMER:
a man with a past works on the future

by Jody Petersen



T.V. Palmer



Stewartia serrata, unusual flowering tree, which seeds in at Palmers, shows seed pods here.

photos by Jim Thompson

Thompson V. Palmer greeted me warmly outside his cozy home, gave me a broad smile, a hearty hello and a shovel. This cheery, rather small, soft spoken man owns "Bramble Lea," an eclectic nursery/arboretum in Thornbury Township, near West Chester, Pa. I had been to Bramble Lea before, briefly, and was impressed by the rows of small pots with obscure labels, the tall trees of every conceivable type and by the slightly untamed look of the place. Palmer himself was spoken of by his fellow nurserymen with such respect—almost reverence—that I couldn't help but feel something unusual going on here. Believing that the best way to a horticulturist's heart is through the soil, I set out on a crisp October morning to help Palmer with some digging in exchange for his insights. As we transplanted a small spruce—he wielding the spade, me fiddling with the tape recorder—he told me of Bramble Lea's origins.

Palmer and Esther, his wife of 57 years, first bought these 16 acres 32 years ago, and what was then farmland is now a fast developing residential area. This parcel is a horticultural and ecological haven in a vast landscape of Zoysia grass and split levels. Originally covered with poison ivy, honeysuckle and blackberry (hence the name Bramble), Palmer cleared the garden areas by hand. He still controls almost all the weeds by hand or by using mulches, "even a rug or an old coat," as he says, except in the nursery rows or when a Canada thistle or artemesia appear. This approach guarantees lots of seedling surprises, as is seen by the yellowwood *(Cladrastris lutea),* white fringe tree *(Chionanthus virginicus),* and many *Stewartia* species, not to mention wildflowers, which have seeded in. Chemical control would eliminate everything, and it is surprising how few 'bad actors' are on the property, all controlled with hoeing and persistence. After 30 years the weedy seed sources are almost eliminated and other seed sources take over. Drifts of Japanese maple and creeping phlox replace bittersweet and dandelions. This weed control 'philosophy' is one of the cruxes of the Palmer garden, giving the place a feeling of naturalness and belonging, and keeping it constantly evolving. Rather than force the property to one set design, and then fight continually to maintain that look, Palmer accommodates and works with the plants' natural habits.



Garden path with *Phlox subulata* 'E. G. Wilson'

We take a break from our labors. The spruce has a nice root system, the ball is intact, the tape recorder is working. I suddenly realize that while I am 55 years younger than this man, we are equally winded. I ask him about his background.

After graduating from Penn State University with a degree in botany, Palmer went to work for J. Franklin Styer Nurseries in Concordville for many years. He also taught a landscaping course to adults for 20 years. After leaving Styer Nurseries, Palmer, then in his sixties, started working as the horticulturist for the Pennsylvania State University Cooperative Extension Hotline. In the meantime he was pursuing his own interests at Bramble Lea—experimenting with plants to evaluate their merits as ornamentals. Palmer wanted to see how different plants would fare in southeastern Pennsylvania, and to encourage local nurserymen and gardeners to use the ones he found especially successful.

One of his first experimental projects was with native plants—still a first love. An

continued

See September, 1977 *Green Scene* (Vol. 6, No. 1) "Uncommon Conifers for Area Gardeners," Thompson V. Palmer, p. 20



White fringe tree *(Chionanthus virginicus)*

advantage to using natives obviously is their suitability to this area. Gardeners are becoming more sophisticated and are looking for plants that are disease resistant, insect resistant and hardy. Natives often have these characteristics. Some hardwood trees that he recommends: the sweet birch *(Betula lenta)*, "seldom bothered by insects"; the black gum *(Nyssa sylvatica)* "brilliant late summer color, move when young"; and the silverbell tree *(Halesia carolina)* "no pests, flowers are clusters of white bells and it has brown pods in the fall." Palmer has also been pleased with the white fringe tree *(Chionanthus virginicus)*, "it has fragrant, fringy white panicles and is seldom attacked by pests," and the sourwood tree *(Oxydendrum arboreum)* "Flowers in the summer, beautiful fall color—I could write a whole page on the sourwood!" he exclaims enthusiastically.

After pushing a wheel barrow with the spruce up a hill, we dug a hole and planted the spruce. We decide to take a stroll through the inviting woodland section of the Palmer garden—I think I am getting the better end of our barter. As we talk, Palmer uses a sturdy stick to point to various plants, to uproot an occasional weed, and now and again for support. He has a bin full of these sticks on his porch, all smooth and worn. He tells me of the wildflowers.

Palmer cleared the garden areas by hand. He still controls almost all the weeds by hand or by using mulches, "even a rug or an old coat," as he says, except in the nursery rows or when a Canada thistle or artemesia appear.

Palmer estimates that he has 200 species of wildflowers on his property; 40 kinds of native ferns, six trilliums and many sedums and phloxes. Palmer has even managed to grow the edible Pine Barrens cranberry *(Vaccinium macrocarpon)* by providing acid soil and excellent drainage. "I've had enough berries for a meal or two. People don't understand how I can grow cranberries,' he says with pride. He suggests that the novice wildflower grower start with bloodroot *(Sanguinaria canadensis)*; Solomon's-seal *(Polygonatum biflorum)*, spring-beauty *(Claytonia virginica)*, wood poppy *(Stylophorum diphyllum)* and bleeding-heart (Dicentra eximia), and then work on the more difficult flowers. He says, "I frown on the wasted effort to try and grow some of our precious wild things that invariably die out within a year or two, generally because it is impossible to provide their exacting growing conditions. I refer to such plants as trailing arbutus, nearly all our native orchids and lycopodiums (ground pine, ground cedar, club moss) in particular."

With the current trend toward smaller houses and plots of land, as well as busy two career families with less gardening time, Palmer suggests a wider use of dwarf conifers. With dwarfs, gardeners can get anywhere from ½ in. to 2 in. a year growth with little care and little space. Palmer has had good experience with dwarf hemlocks, especially 'Coles Prostrate' and some of the dwarf needled evergreen genus *Cryptomeria* cultivars such as the upright, oval '*Compressa*' and the mound-like plant identified by the original supplier as 'Elegans Compacta.' He also suggests the irregular bristle cone pine *(Pinus aristata)*. "Plant it at such as phlox, iris, peonies, hostas and astilbes have all been great successes in the Palmer rock garden.



Incense cedar *(Calocedrus decurrens)*



Seedling Exbury azalea

the top of the garden where it can grow out in all directions and where it will be happy with the extra drainage." One of Palmer's favorite dwarf junipers is the very blue little *Juniperus squamata* 'Prostrata.' "Outstanding," he says.

Dwarf conifers are good for the rock garden too, and rock gardening is another Palmer passion. He was one of the founding members of the well respected Delaware Valley Chapter of the American Rock Garden Society and is still active in the American Rock Garden Society. The modern gardener can benefit from the intensiveness of rock gardening—much can be fit into a small space and poor soil can be adjusted to suit individual plants by mounding and providing an ideal medium with excellent drainage. "In addition, plants can show off their assets to a greater advantage on a slope," he points out. Dwarf bulbs and dwarf forms of popular perennials

Standard conifers have not escaped Palmer's critical eye, either. Instead of using pyramidal arborvitaes which, in his words, "turn off color in winter, are not very tolerant of shade and are ordinary," or red cedars and other upright junipers, which are "hosts to spider mites and can get ratty looking," Palmer suggests trying the incense cedar *(Calocedrus decurrens).* Even though this is a west coast plant, he has had success with it in his garden and adds, "it has a year round green color and an unusually narrow habit; it may lose a few of its lowest branches but the lawn mower often gets those anyway. It is a comparatively slow grower. Another alternative is the Leyland cypress *(Cupressocyparis* x *leylandii),* which is bushier and has proven hardy for him. "And thirdly I commend to you a unique form of our native white cedar *(Chamaecyparis thyoides 'Andelyensis Conica');* its habit is a narrow pyramid, slow and compact like the dwarf Alberta spruce."

It is getting late, the sun is starting to set, my tape is full. We sit in Palmer's homey kitchen and watch the finches at his feeder. He tells me he is phasing out the wholesale nursery aspect of Bramble Lea, and is concentrating on making it a teaching arboretum, offering alternatives to the professional and home gardener, his 'plants for the future.' As he so eloquently puts it, "My thinking leads to this. Just putter around in your own way and enjoy. Gardening is sure not a static thing and applying some originality to it should just add to the spice of life."

Note:

T.V. Palmer welcomes visitors to Bramble Lea, but please call first. His number is (215) 459-0542

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Jody Petersen is a designer with Landscape Services Inc. in Hockessin, Delaware. She is also a student at the Arboretum of the Barnes Foundation.

GLAUCIDIUM PALMATUM: *a rare and rewarding plant*

by Roxie E. Gevjan

Occasionally we read about a lovely plant that is referred to as "rare in cultivation," not commonly grown in gardens. If we were to take the time and trouble to investigate to find a reason for its absence from gardens, we would probably conclude that the plant is not easily available, and the necessary cultural requirements are either difficult or impossible to duplicate. In my opinion, neither conclusion is applicable to *Glaucidium palmatum*.

It is true that *Glaucidium palmatum* is rare in nature, and consequently in gardens. Although I have never seen it in nurseries or advertised in nursery catalogs, it has been listed in the following Seed Exchanges for several years: The American Rock Garden Society, The Alpine Garden Society (England), and The Scottish Rock Garden Club. Its cultural requirements are quite simple; it grows in my woodland with no special care.

Glaucidium palmatum belongs to the family Ranunculaceae. It is a rare native of the mountains of Japan in Hokkaido, the northernmost of Japan's main islands, and in the north central district of Honshu, the largest of the four chief islands considered as the mainland of Japan. *Glaucidium* is monotypic, a relative of *Hydrastis* (Goldenseal). The mature plant is 2 ft. to 2½ ft. tall and almost as broad. The short fat rhizomes produce branchless stems with 2-3 large, palmate and coarsely dentate leaves with 7-11 lobes. The leaves are somewhat hairy when young and can be as much as 12 in. across when fully developed. They are at the upper third of the stem, each on its own petiole. At the base of the flower is a large leafy bract up to seven inches across, also coarsely toothed but rather orbicular (round) in shape. Flowers are terminal, usually solitary, about 3 in. in diameter, and violet to mauve. There Theis a white form. Like many members of the *Ranunculaceae, glaucidium* has no petals, but four sepals that are roundly broad, with a tight cluster of stamens. The seeds are flattened follicles about 2 in. across, usually, but not always paired, with an abundance of broadly winged flat seeds. Propagation is by seed, and also as one text suggested, by "careful division." However, mature plants are best left undisturbed If propagation is done by division, I would prefer to try it in early spring, just as the plant is beginning to show growth.



Seedling sown September 26, 1983, potted up July 26, 1984.

propagation

I have been growing this plant in my garden for 12 years. The seed came from The American Rock Garden Society in 1973 and was sown January 17, of the same year. I placed the seed pan outdoors in the cold frame, which is covered only with screened sashes (no glass sashes). On April 23, 1973 one precious seedling emerged and was left undisturbed for two years. On May 17, 1975, this seedling was planted in the woodland. At the time, I had no information on cultural requirements, other than that the plant was a woodlander. Many years later, I sowed seeds from my own plant. For two consecutive years I had complete failures. Finally, I changed my approach from sowing mature seed to sowing "green" seed. I was even advised that seed must be frozen for three months. I sowed three seed pans, one with slightly "green" seed, one with mature seed, and one for the freezer. The first two pans were placed in the cold frame side by side in an attempt to provide identical conditions. The third pan was kept in the freezer for the three months. The results were very interesting and reminded me of a correspondence I had many years ago with the late Dr. Carl Worth. He stated that some seeds definitely have a built-in germination-time pattern, and will germinate only within that period, regardless of when they are sown. That apparently is true of *Glaucidium*. All three pans germinated during the third week of April. The "green" seed produced the most seedlings, and was the first pan to germinate. The mature seed pan produced about half as many. The pan from the freezer produced two seedlings. The first pan, sown Sept 26, 1983 produced 18 seedlings, which developed a true leaf before any of the other two pans. The pan with mature seeds produced seven seedlings. I think that potting up the seedlings in the cotyledon stage is advisable, but I have made no experiments to determine if there is, in fact, any benefit. The seedlings in the first pan were a little crowded so I very gingerly potted up several of them, but not all, as I decided not to disturb all of the young seedlings. When the potted up seedlings gave every indication of surviving, I then potted up all the seedlings from the first pan. They all seemed to respond favorably to this treatment. The first group were potted up July 26, 1984, and a second group on May 15, 1985. The 1984 seedlings are more advanced in growth than those potted up in 1985. (See picture). I do not know why my previous attempts to propagate failed, but I suspect viability may have been a factor.

culture

This plant produces an abundance of seed. Why then is it so rare? My original plant has never produced even one "volunteer" seedling, so I cannot answer this question. The texts say that the plant







photos by Armen H. Gevjan

"probably" prefers a leafy, peaty soil, moist but not wet, with a northern exposure, in a woodland. Another reference suggests growing it in a cold frame or alpine house. Still another says it will probably grow in the New York area. I know that several ARGS members grow it in the Connecticut area.

My first seedling was in our "dry" woodland on a very gentle slope, facing due west, in high shade, in ordinary soil. My first record of bloom is May, 1979. I suspect that it bloomed before and that I missed the bloom. However, after 1979, I observed the plant more closely and became enchanted with its magnificent performance. Each year the blooms were multiplied, until I finally succumbed to counting — 47 in all (1984). Although my plant was supposed to be the white form, the sepals are brushed very delicately with a pale lavender-pink tone, fading to white at the margins. It is a breathtakingly beautiful display. This year I discovered four pure white blossoms for the first time. If they produce seed, which I suspect they will, I shall go back to more experimentation with seed. In the meantime, I shall try to produce the type plant and hopefully have two forms of the lovely *Glaucidium palmatum*.

Sources

American Rock Garden Society
Ms. Buffy Parker
Secretary, ARGS
15 Fairmead Rd
Darien, CT. 06820

Alpine Garden Society
Mr. E.M. Upward
Lye End Link
St. John's
Woking GU21 1SW
Surrey, England

The Scottish Rock Garden Club
Mrs. S. Maule, Overseas Liaison
578 Lanark Rd.
West Balerno, Midlothian, Scotland
EH147BN

Alpine Garden Club of B.C.
Pat Foster, Secretary
566 Esquimalt Ave.
West Vancouver, B.C. Canada
V7T1J4

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Roxie Gevjan's lovely show garden, featuring wild flowers, alpines and conifers, has been on many horticultural tours. Gevjan is interested in growing plants from seeds and has been teaching propagation at PHS and lecturing at Tyler Arboretum, local colleges, garden clubs and plant societies. She's a member of the American Rock Garden Society, The Alpine Garden Society, the Scottish Rock Garden Club and the Alpine Garden Club of British Columbia

Upper left: Close-up of flower

Upper right: Leaf and bract. At first I mistook this bract (round form in lower left) for another leaf form. But in a discussion with Dr. John Penny, emeritus director of the Arboretum of the Barnes Foundation, he identified it as a bract.

Lower right: Same plant in May 1984.

The pHorgotten pHactor

by Joan & Robert Feuer

The concept of pH is simple and critical to the health of plants, but surprisingly overlooked by many horticulturists, professional as well as amateur. If you don't consider pH, you can lose plants to deficiencies despite abundant feeding.

pH is the measure of how acid or alkaline a substance is. The neutral point, neither acid nor alkaline, is 7.0. Below 7.0 is acid; above it is alkaline. You don't need more chemistry than that.

Many plants are circumneutral, doing well anywhere in a range of pH 6.0 and 8.0. Some are very specific within this range. Other plants require acid conditions; still others, alkaline.

With regard to pH, field crops have been much more extensively studied than have house plants. Joan [co-author] arrived at the following figures by gradually adjusting the pH of potted plants until their condition improved. Ferns and orchids do their best at a pH of 5.5. Any plant with a high requirement for iron (such as gardenias and conifers) will be able to pick it up best at a pH of about 5.5. You can get away with leaving the pH higher if you feed the plant chelated iron but it is easier to adjust the pH. African violets should be kept in soil having a pH of between 5.5 and 5.8. *Schefflera* and palms prefer soil at pH 6.5. For *Dracaena,* keep the soil at 6.5 to 6.8; *Ficus benjamina* likes soil at pH 6.8. Cacti, yucca, and other desert plants reach their peaks at a pH of between 6.8 and 7.0. *Spathiphyllum* is very intolerant of variations in pH and should be kept at a pH of exactly 7.0.

how to figure out pH for specific plants

If you don't know the specific pH that is best for a plant, you can get a rough idea from its natural habitat. As a general rule, the wetter the habitat, the lower the pH. Bog plants (pitcher plant, venus flytrap, etc.) need a pH between 3.0 and 5.0. Next come the plants of the rain forest, whether ground-dwelling, like the African violet, or living in the trees, like many orchids. Then come the plants of the temperate forests, followed by grassland plants. Finally, at the alkaline end of the spectrum, are the desert plants, used to living in salty, alkaline soil, and the few plants found in limey areas. The following optimum ranges for wild plants may be instructive, even if you wouldn't want the last as a house plant: bog rosemary *(Andromeda glaucophylla),* 3.6 to 5.0; wake robin *(Trillium erectum)* 7.0 to 7.5; and stinking chara *(Chara vulgaris)* 7.5 to 8.5. As a rule of thumb, remember that rain is acid, even if you don't live downwind of a coal burning industrial plant. The more it rains, the more lime is dissolved from the surface soil and washed downward to where the plants can't reach it.

The different packaged potting soils vary in pH as well as texture. African violet soil is the most acid; "potting soil" is closer to neutrality; cactus mix is the most alkaline of the three.

Soil pH affects both the use and availability of nutrients. A good example of this is the gardenia. Thousands are sold each year to people who watch them slowly turn yellow and drop leaf after leaf until there is nothing left but a dried-up stem. Although gardenias are acid-loving, they often come potted in standard potting soil (generally pH 6.5) because it's cheaper and more convenient for the grower to use. In a nursery situation, the plants can be loaded with chemicals to correct for the improper soil. Not so at home. The buyer waters the gardenias, feeds them, and watches them starve. Gardenias have an almost insatiable need for iron, which is available in most commercial plant foods. In a near neutral substrate, however, the iron is chemically tied up and unavailable to the plant. It's not until the pH of the soil is lowered to 6.0 or less that the gardenia can pick up the iron it needs.

Gardenias have an almost insatiable need for iron, which is available in most commercial plant foods. In a near neutral substrate, however, the iron is chemically tied up and unavailable to the plant. It's not until the pH of the soil is lowered to 6.0 or less that the gardenia can pick up the iron it needs.

Similarly the availability of other nutrients is affected by the pH level. Peaks of availability are as follows: nitrogen, 6.0 to 8.0; phosphorus, 6.5 to 7.5; potassium and sulfur, above 6.0; calcium and magnesium, 7.0 to 8.5; manganese, 5.0; boron, copper, and zinc, 5.0 to 7.0; molybdenum, above 7.0. Phosphorus and boron are also readily available at pH above about 8.8. Outside these peak ranges, the nutrients may be tied up in relatively insoluble compounds and unavailable to the plants. Another indirect effect of acidity on plants is the toxic effects of low pH. In acid soils, certain soluble compounds of aluminum and iron are formed, with deleterious effects on plant life.

checking water and pH level

When plants are doing poorly, it is frequently a good idea to check the pH of the soil and the water. The easiest way to do so is with a meter. When the soil is damp but not freshly watered, you simply stick the probe in near the plant's roots, wait half a minute and read from the dial. Clean the probe and move on to the next plant. If you don't have enough plants to warrant spending $15 to $20 for a meter, you can get indicator papers of various kinds at pharmacies or scientific supply houses. Soil test kits work the same way but use liquid indicators. If you are even partially color-blind (many men are, without knowing it), indicators may not work for you. For greatest accuracy, you need a potentiometer and glass electrode, but such accuracy is needed only for research.

Tap water is suitable for most plants. Some people whose tap water is alkaline, however, want to raise plants that require acid water. Theoretically, they could use distilled water and add trace elements but it is easier to use rain water. If your source of rain water is runoff from the roof, try to avoid gathering the first of the runoff from each rainfall. Allow the rain to wash off the roof and gutters somewhat before you start gathering. The same holds true for those who substitute rainwater for hard tap water. Never use softened water. To acidify water (as for orchids), add phosphoric acid and keep checking the pH until you have it where you want it.

The pH of soil can be adjusted with sulfur or lime. The usual problem is raising the pH but ferns sometimes need their soil pH lowered. Use sulfur, as in the form of ammonium sulphate, to lower soil pH. Make the change gradually and not only keep testing the pH but check for signs of over-fertilization if you use sulfur in this form; ammonium sulphate is 20 percent nitrogen. Use hydrated lime to raise the pH. The amount needed will vary with the starting pH of the soil and its composition. As a rule of thumb, figure that a tablespoonful of hydrated lime in a gallon of water will raise the pH of the soil in a 12 inch pot 0.8 units. Dolomitic lime is cheaper and slower (0.5 units per tablespoon) but is sometimes preferred because it also supplies the plant with magnesium, a necessary element



photo by Joan Feuer

Discoloration and chlorosis, indicating mineral deficiency, mark the leaves of this *Dracaena* 'Janet Craig.' Once the pH was adjusted, new growth was clean.

absent from many plant foods. It is also helpful in that it ties up certain impurities, such as fluorides, before they can reach and damage the plant.

When one of your house plants is not doing well, check for signs of pests, disease and deficiencies. If you can't isolate a cause or if you think that the problem may be a nutrient deficiency, adjust the pH of the soil. You will probably notice a decided improvement in your plant's health.

●

Robert Feuer is a free-lance ecologist and writer. His articles on plants and their care have appeared in several magazines and newspapers. Joan Feuer has worked in a greenhouse, as an interior landscaper and as a biochemist.

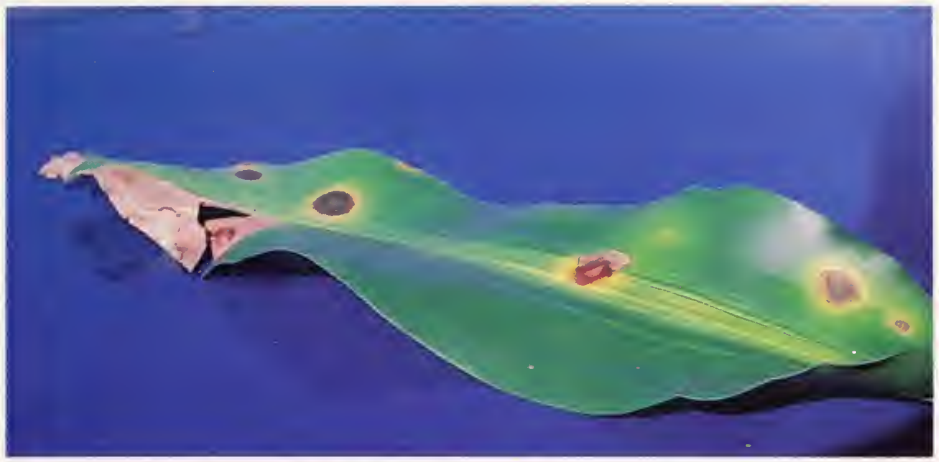


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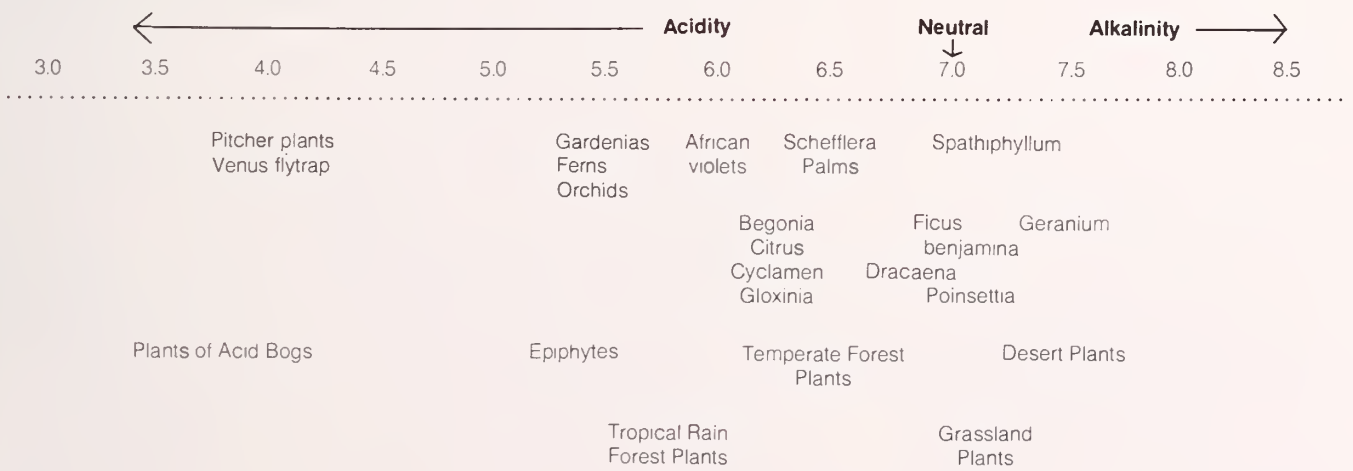
The leaves of this *Dracaena fragrans* 'Massangeana' show some of the symptoms of low pH: tip curl, marginal die-back, and spotting. The soil was limed to bring it from pH 5.8 to 6.8. New growth showed none of these effects.



photo by Joan Feuer

Leaf-tip die-back in this *Dracaena* 'Janet Craig' is symptomatic of mineral deficiency caused by improper pH. Hydrated lime raised the pH quickly. Dolomitic lime was used to maintain it at the proper level.

pH Preferences* of House Plants



*The author says except for the *Spathiphyllum* these ranges are only general: please experiment.



photo by Peggy Bowditch

veltheimia viridifolia

Veltheimia, a bulb from South Africa, is appealing for its flowers, foliage and undemanding nature. In mid-winter, just as you are hungry for a spot of color, it produces a pale salmon bloom made up of many small tubular flowers. These flowers decorate the plant for at least a month. A second point in *Veltheimia's* favor is surely its attractive foliage: glossy bright green leaves with slightly scalloped edges. It's not fussy when it comes to cultural requirements: a sunny window sill, watering when dry, occasional fertilizing and a period of dormancy in summer. I stop watering in June and the foliage disappears. A September watering reawakens *Veltheimia.* After three years it's finally outgrowing its four-inch plastic pot. Although many disagreeable pests have afflicted other plants nearby, *Veltheimia* seems not to attract them. The only difficult thing about the bulb is finding a source. A kind friend gave me one. I haven't seen them for sale locally but two catalogs that list them are:

Logee's Greenhouses
55 North St.
Danielson, Conn. 06239

Merry Gardens
Camden, Maine 04843

Peggy Bowditch

●

Peggy Bowditch is a member of the PHS Council, a horticulturist, teacher and award winning exhibitor in the Philadelphia Flower Show.

my "sideways" norfolk island pine

This *Araucaria excelsa* was made from a cutting at least 25 years ago. I tried a branch cutting to see what would happen. To use the leader would spoil the characteristic straight trunk and symmetry of this tree-like, slow-growing house plant. Growers usually propagate it from seed for use in the north where it is not hardy outdoors.

My cutting rooted then, and I have since made many cuttings in a plastic-covered flat of perlite at home. It grew splendidly, but always horizontally. Its base is now old and gnarled, a twisted lump. New shoots keep growing out sideways from the top or sides of main branches. I moved it from a mantelpiece near an east window in my former residence to a high shelf by another east window where it swoops down over my desk.

Once it toppled over when the pot became light from being too dry over a radiator, so I repotted it in a wider one, with heavy stones on one side to balance the growth on the other side. Roots of potted araucarias do not grow rapidly enough to demand repotting often.

It sits on damp pebbles in a saucer whose rim is held down by a horizontal nail in the wall. A small step-ladder and a flexible plastic container serve to water it — a watering can won't fit under the ceiling. Once or twice a week is sufficient, depending on the heat in the room. I have fixed an inconspicuous cardboard baffle between desk and windowsill to deflect the hot air.

In May it goes out on my front porch, reaching to the floor from a table where it can receive unobstructed light from the northern sky. But I enjoy it most over my desk, casting its shadows up to the ceiling.

Ann Newlin Thompson

●

Since retirement after 12 years of supervising the preservation of the Wyck Gardens in Germantown, Nan Thompson has gone back to her own house plants. She has written about Wyck and about house plants for *Green Scene.*



photo by Edmund B. Gilchrist, Jr.

classified ads

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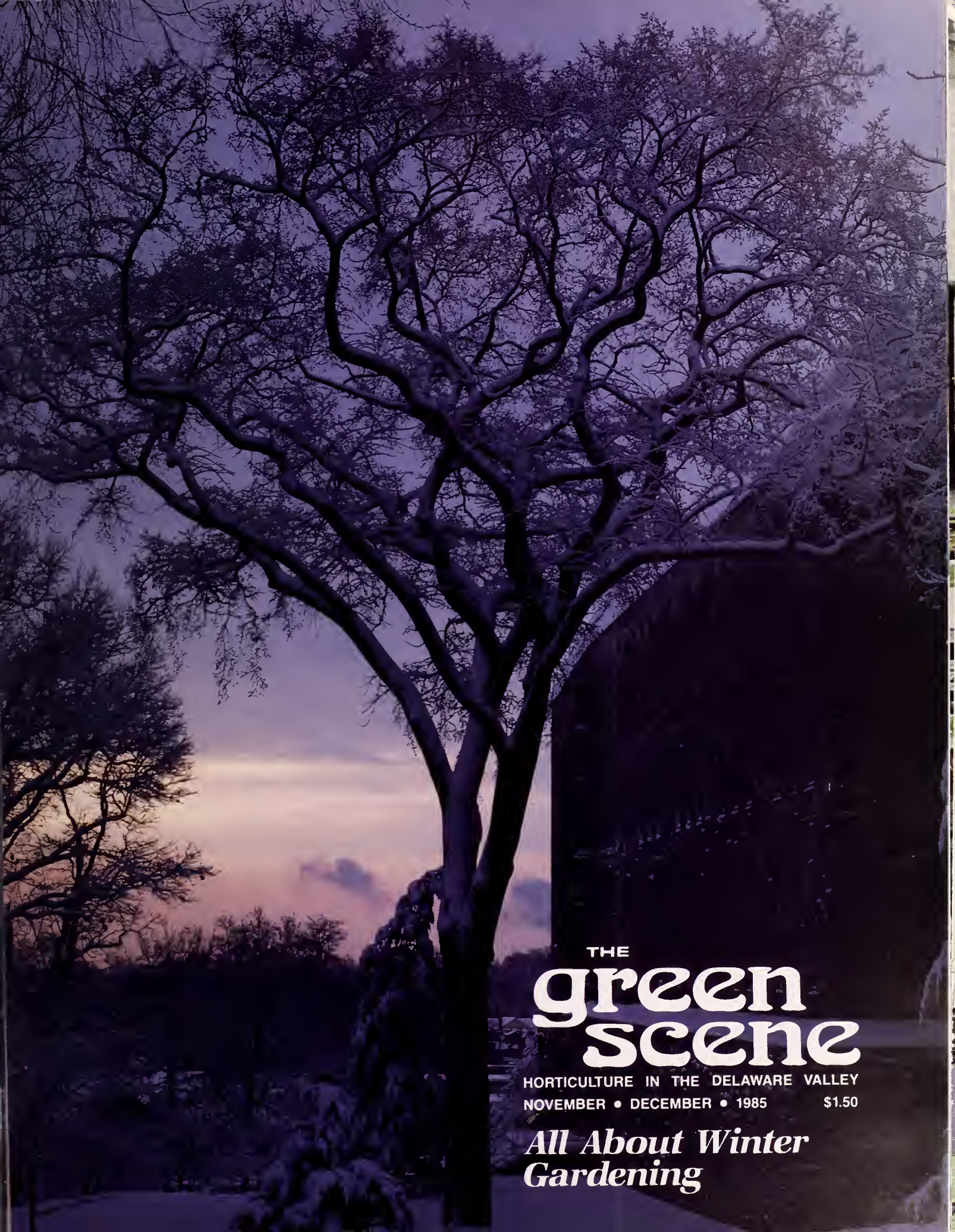
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Cyclamen Pannevis strain.
See page 4.



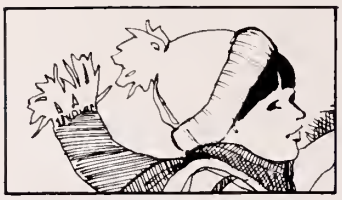
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All About Winter Gardening



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Front cover: An *Ulmus americana* at the Scott Foundation. See "Public Gardens to Visit on a Cold Winter Day." See page 26.
photo by Judy Zuk

Back cover: photo by Marvin Clymer

Pruning Problem

In the September issue of Green Scene *we had a pruning and planting problem at the paste-up desk. The last four sentences at the bottom of page 28 were erroneously pasted up at the end of the last paragraph on that page. They belonged at the beginning and end of the first column on page 29. The paragraphs should have read as follows:*

With the current trend toward smaller houses and plots of land, as well as busy two career families with less gardening time, Palmer suggests a wider use of dwarf conifers. With dwarfs, gardeners can get anywhere from ½ in. to 2 in. a year growth with little care and little space. Palmer has had good experience with dwarf hemlocks, especially 'Coles Prostrate' and some of the dwarf needled evergreen genus *Cryptomeria* cultivars such as the upright, oval *'Compressa'* and the mound-like plant identified by the original supplier as 'Elegans Compacta.' He also suggests the irregular bristle cone pine *(Pinus aristata).* "Plant it at the top of the garden where it can grow out in all directions and where it will be happy with the extra drainage." One of Palmer's favorite dwarf junipers is the very blue little *Juniperus squamata* 'Prostrata.' "Outstanding," he says.

Dwarf conifers are good for the rock garden too, and rock gardening is another Palmer passion. He was one of the founding members of the well respected Delaware Valley Chapter of the American Rock Garden Society and is still active in the American Rock Garden Society. The modern gardener can benefit from the intensiveness of rock gardening—much can be fit into a small space and poor soil can be adjusted to suit individual plants by mounding and providing an ideal medium with excellent drainage. "In addition, plants can show off their assets to a greater advantage on a slope," he points out. Dwarf bulbs and dwarf forms of popular perennials such as phlox, iris, peonies, hostas and astilbes have all been great successes in the Palmer rock garden.

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TREES AND SHRUBS OF WINTER INTEREST

by Carl R. Hahn

Hamamelis intermedia 'Ruby Glow'

I admit to an unabashed fondness for plants with winter interest, especially trees and shrubs that can convey on even the coldest day the message that the garden lives.

The Chinese witch hazel outside my living room window is a case in point. It is usually in full bloom in early to mid-February every year. Defiant of the calendar, its branches are studded with golden-yellow flowers while many of the plants around it look tired and winter-worn. On days when the temperature goes up to the mid-40's the first honey bees of the year emerge to visit this fragrant flowering shrub. Chinese witch hazel is great for chasing the winter blues and promoting the feeling that winter need not be a closed season in the garden.

While flowers outdoors in winter may be one of the more dramatic garden statements, there ar other attributes plants possess that can be used to great effect in winter. Trees and shrubs with ornamental bark and variously colored stems are very pleasing in the winter landscape especially on a bright, sunny day or contrasted against a snowy background.

Fruits that persist into winter are welcome colorful additions to gardens rendered toneless by bare branches and drab winter colors. As fruits often attract birds, life and motion in the winter landscape is enhanced.



photos by Dick Keen

Hamamelis mollis 'Brevipetala'

Foliage of broad-leaf and coniferous evergreens in various colors and textures can add numerous choices and daubs to the gardener's winter palette. Bold and striking plants, as well as those of a more subtle character, capable of enlivening the garden in December, January and February are apt to be no slouches in balmier months. With few exceptions, plants having superior winter-interest qualities tend to be first rate in other seasons as well. The reverse seems less often to be the case.

flowers/fragrance

One group of shrubs, in the Middle-Atlantic region, tends to be highly reliable, attractive and effective winter flowering plants. These are the witch hazels.

Earliest to flower is the common witch hazel, *Hamamelis virginiana,* which grows to be a large shrub or a small tree. Flowering occurs between September and early December and is quite variable but most seem to flower in October over a period of two to four weeks. Native to a large portion of Eastern North America, common witch hazel has fragrant, four-petaled flowers. Each petal is about ¾ inch long and quite narrow, ribbon-like.

While its autumn blooming season may not allow this plant to be termed winter flowering, it is about the last of our native woody plants to bloom and one of very few hardy plants available that blooms at that time of year. These plants have excellent yellow fall color which sometimes coincides with flowering, thus tending to diminish the flowering effect.

Common witch hazel might be used in larger gardens in a naturalistic setting.

The Chinese witch hazel, *H. mollis,* is a first class ornamental shrub, reaching a height of about 15 ft. and a spread about the same. It has glorious butter-yellow fall color followed in February by spicy-fragrant flowers, which lasts up to five weeks.

This past winter my Chinese witch hazel started to flower in December, spurred on by very warm weather. Just after Christmas

continued



photo by Dick Keen

Hamamelis x *intermedia* 'Diana'

bitter cold set in, and I feared all the flowers were lost. Not so; the petals simply curled up, waited out the month of January, and bloomed as usual in February.

The hybrid between the Chinese witch hazel and the Japanese species, *H. japonica,* is termed *H.* x *intermedia.* Numerous cultivars of the hybrid have been named and one of the best is 'Arnold Promise' and fortunately it is not difficult to find in nurseries. For me, it tends to bloom after the Chinese species, usually starting in late February or early March. It is floriferous and fragrant with bright, clear yellow petals up to about an inch long. A vase-shaped shrub, it grows up to 20 ft. with an equal spread.

Hamamelis x *intermedia* 'Diana' is perhaps the best of the so-called "red" flowered witch hazels. Actually the flowers are more on the order of coppery-red or coppery-orange, but nevertheless it significantly expands the color range beyond the yellow and gold hues of most witch hazels. 'Diana' tends to bloom about mid-February, before 'Arnold Promise' but within the range of most intermedias and *H. mollis.* It is especially nice to see it used in combination with yellow flowering witch hazels.

Bold and striking plants, as well as those of a more subtle character, capable of enlivening the garden in December, January and February are apt to be no slouches in balmier months. With few exceptions, plants having superior winter-interest qualities tend to be first rate in other seasons as well.

Some years ago I planted a wintersweet, *Chimonanthus fragrans* near my front door. This deciduous winter flowering shrub is no beauty in bloom or out, or at any time of year, but for me it is special as the one thing it does well is perfume the air for yards around with a most delightfully sweet fragrance. Usually this occurs between Christmas and New Year's, and for me it has become something of a tradition to want to pick a flower from outdoors on New Year's Day.

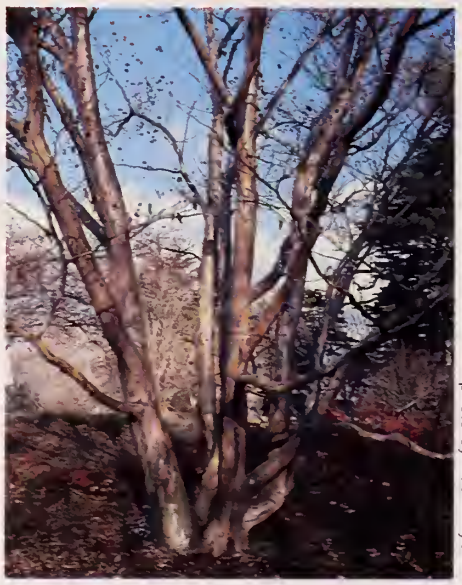


photo by Paul Meyer

Choose *Stewartia pseudocamellia* for its winter beautiful bark.

Wintersweet flowers are borne on bare stems and tend to open sporadically over a long period of time, providing the weather cooperates. The flowers, ¾ -1 inch across, have translucent petals of a pale cream to yellow color with a purplish-brown central blotch.

The flowers and flower buds are considerably more subject to damage by excessive cold than are those of witch hazel. Cold weather in early December can kill all of the flower buds, and prolonged cold weather can delay flowering until February.

The Japanese and British have developed cultivars as yet not widely grown here that show brighter flower color and greater floriferousness. We anxiously await these to see how well they perform in this country.

Wintersweet grows to 10 - 15 ft. and has dark green leaves, some of which become yellow in autumn and the rest turn brown or fall green. This is a shrub for those who won't be disappointed if that delightful fragrance isn't there every year.

It would be difficult to imagine a shrub with a headier, more powerful or appealing perfume than the winter or February daphne, *Daphne odora.* Given a favorable winter or protected site where the temperature does not fall below 0°F., this shrub can be very rewarding as it packs quite a bit into a small package: evergreen mound-like, long-lasting flowers in February or March, tolerance of shade and growth to a height of 3 ft. or less. But the flower buds are apt to be killed by temperatures below zero, and when severe weather threatens plants ought to be given additional protection.

The species has purple-pink flowers in clusters but there are also cultivars with white flowers as well as selections with variegated foliage, all of which are attractive year-round.

bark/stems

Tree bark is amazingly varied and some species can provide a good deal of color in the winter landscape. The bright white bark of New England's canoe birches are well known and beautiful within their native range. Locally, they are often subject to the ravages of the bronze birch borer, which typically leads to a slow death. Yet there seems to be some evidence of borer resistance in *Betula platyphylla japonica,* the Asian white birch. While all of the evidence is not in, it might well be worth trying where you want a white barked tree.

The river birch, *Betula nigra,* has long been considered resistant to birch borer and seems quite well adapted to the local area. Ultimately the river birch becomes a large tree. It has fluffy, peeling bark in a variety of colors, such as brown, reddish-brown, cinnamon, and salmon-pink. It is an attractive tree that has recently given rise to the cultivar 'Heritage,' with salmon-cream-white bark. 'Heritage' is currently attracting much attention.

The paper-bark maple, *Acer griseum,* a tree of classic beauty, can be an asset to



photo by Paul Meyer

Pinus bungeana, lace bark pine.



photo by Gene Eisenbeiss

Ilex 'Sparkleberry' at the U.S. National Arboretum, "like the glowing embers of a fire."

any garden in any season. A small, neat shade or specimen tree, it has beautiful cinnamon or reddish-brown bark that peels in strips. The bark of this tree is a marvelous contrast to its dark, rich green foliage. Truly, this tree enhances the landscape every day of the year.

A close rival for my affections is *Stewartia pseudocamellia.* Justification for growing this small-to-medium-sized tree could be based on its beautiful bark alone, which is a pleasing combination of grays, browns, orange-brown, and cream white. But in addition it is summer flowering with white, camellia-like flowers and has great fall colors of yellow, red, and purple. These qualities are similar in its close relative *Stewartia koreana,* Korean stewartia. Either one is a fine choice for the garden.

There are many fairly common landscape trees with beautiful bark characteristics such as American and European beech, sycamore, Chinese quince, striped bark maples, lace-bark pine *(Pinus bungeana).* Even the familiar Japanese dogwood, *Cornus kousa,* with mottled bark and white oak, *Quercus alba,* with its silver-gray bark, while not often noted (as plants in the winter garden) are very effective.

Plants with colored stems can add considerable punch to the winter landscape in relatively little space. Red and yellow-stemmed cultivars of the shrubby redosier dogwood, *Cornus sericea,* aka *C. stolonifera,* have quite a pleasing effect when used tastefully and with restraint. The yellow-stemmed cultivar is 'Faviramea' and an attractive bright red-stemmed cultivar is 'Isanti.' Both are widely grown and are effective in small individual plantings or mixed.

The colored stem effect is most intense on vigorous shoots made the previous growing season. If the plants are to be effective in the landscape they must be pruned within a couple inches of the ground each spring. Failure to provide hard annual pruning results in plants that are unattractive year-round.

Other, more subtle stem colors can be introduced through the use of *Kerria japonica* – rich green; *Salix irrorata* – bluish-purple-chalky stems; and *Poncirus trifoliata,* the hardy orange – pea to olive green.

Both the deciduous and evergreen hollies suggest numerous opportunities to achieve spectacular winter fruit displays and are most evocative of what a winter landscape can be.

One relative newcomer of great merit is the deciduous hybrid holly, *Ilex* x 'Sparkleberry,' introduced a few years ago by the

continued



photo by Paul Meyer

The Washington hawthorn, *Crataegus phaenopyrum.*

National Arboretum. I first saw this plant on a cold January day. So brilliant was its fruit display that the plant drew my attention from 100 yards away. The bright, red fruits are very shiny and produced in great quantity. My first impression was that the plant was like the glowing embers of a fire. 'Sparkleberry' is a large shrub, growing to about 15 ft., perhaps more. Its fruits last all winter – in fact it shows well for about 4-5 months. This shrub delivers much. A male pollinator for 'Sparkleberry' is *Ilex* x 'Apollo,' also a National Arboretum introduction.

The American holly, *Ilex opaca* is so much a part of our culture and traditions that is is almost synonymous with the winter holiday season. While there are those who complain that its foliage lacks a rich green color, it is popular. Beyond the traditional red-berried types, numerous yellow-fruited cultivars of American holly can give the garden a different look. These are very showy.

As a group the hawthorns are very attractive trees in the winter garden. Their fruit display tends to be very persistent and showy. Most species are small to medium-sized trees with red fruit about the size of a pea. Two of the best hawthorns are the Washington hawthorn, *Crataegus phaenopyrum* and *C. viridis* 'Winter King.'

The Washington hawthorn grows to 25-30 feet, ultimately developing a round form. It has deep green leaves in summer, white flowers in late spring, fall color that varies from orange to purple and abundant red fruits that color in early autumn and hold on the tree all winter.

The 'Winter King' selection is similar in most aspects and it too has a winter-long fruit display.

Hawthorns are best displayed where their fruits can be seen against the sky. We have many clear winter days when the blue sky is a beautiful background for the shining red fruits of hawthorns. Because of their size hawthorns can be fitted into almost any kind of garden and are well adapted to urban conditions.

Foliage is an important ingredient in the winter garden and a case can be made that any evergreen is a plant of winter interest. However, some rather judicious and selective use should be made of plants with very dark green foliage such as yews and Canadian hemlock. Lighter and brighter greens will not convey a gloomy and oppressive feeling. Where hardy and where space allows, the true cedars, *Cedrus deodora* and *Cedrus atlantica* 'Glauca,' the Himalayan and blue Atlas cedars respectively, can provide grey-greens and blue-greens and a relief from too much dark green.

The various cultivars of *Juniperus horizontalis,* creeping juniper, often undergo a winter color change from bluish to violet-purple. These ground-hugging shrubs can be very striking when used in groups. For individual accent consider dwarf conifers. A visit to a nearby arboretum or botanical garden should give the prospective winter gardener plenty of ideas for using the various forms, colors, and textures dwarf conifers offer.

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Carl R. Hahn is chief of Horticulture and Forestry Division of Maryland National Capital Park and Planning Commission. In addition to collecting books about winter gardening, he says he is interested in growing plants that "don't run with the pack, that is, plants that don't bloom in April or May, but that bloom in winter, late summer and fall." Hahn has combed nurseries in Japan and Europe to bring back new, rare and unusual plants for trial and evaluation.



photo by Nancy Greenwood

vegetables: EARLY AND LATE

FALL PREPARATIONS FOR SPRING PLANTING

by Nancy Greenwood

If "location, location, location" is good advice for home buyers, it's essential for any vegetable gardener hoping to get a jump on the season. We are fortunate to have a site high on a ridge, with southern exposure and good drainage. Snow melts quickly in late winter, and we can work the soil up to two weeks earlier than our friends who garden in the valley.

soil preparation and fall sowing

Even so, it is frequently April by the time the soil is dry enough to till without compacting. Therefore, in anticipation of early sowings, we prepare the soil in late autumn, omitting sowing a fall cover crop where we want to plant before mid-April. Instead, we dig in lots of compost and sometimes manure from a local stable. We even dig a shallow trench for the first sowing of peas, so that we'll be able to plant even if March is wet.

Any time from late October through November, we scatter-sow what will be the earliest spinach harvest. We do not cover the seed. If the autumn is dry, we water the area to help germination. Variety doesn't seem to matter. Whether we have 'Melody' or 'Bloomsdale Longstanding' left over, we always enjoy good germination before the ground freezes. The tiny seedlings overwinter well and resume growth in early March, when we encourage them with a shower of fish emulsion. Using these techniques, we frequently harvest our first spinach salad by the first week in April.

selecting and ordering seed

Ordering seeds is a January priority. There is little more frustrating for the early-bird gardener than to be without the proper seeds, and the best varieties for early harvest are often difficult to locate in garden center displays. You can save weeks by choosing the low-growing 'Sugar Bon' edible-pod pea, for example, at 54 days to maturity, instead of the original 'Sugar Snap' at 72 days. 'Melody' spinach matures more than a week before 'America.' And what gardener doesn't yearn for even one red tomato "in just 52 days from set plants"? We have best luck in this category with 'Park's Extra Early,' and we're able, if the weather cooperates, to enjoy home-grown tomatoes in salads from the middle of June.

In general vegetable varieties that mature early are smaller at maturity, with smaller fruits, for example, than their relatives with longer periods of development. They also tend to have a shorter production season and a smaller yield per plant as a result. Nonetheless, they afford the gardener an opportunity to enjoy "peak of the season" flavor and quality earlier than would otherwise be possible.

early planting

Around Valentine's Day we help Nature thaw the ground and warm the soil by spreading sheet plastic over the beds. In the areas that will be planted first we use clear plastic for the greenhouse effect, i.e., to warm the soil. We use black plastic when we plant later to retain heat as well as to prevent weed growth.

By Presidents' Birthday, we always have a few six packs of lettuce seedlings germinating indoors in plastic bags. We generally use one of the butterhead types for earliest indoor sowing, either 'Buttercrunch' or 'Augusta.' Though they are much longer to maturity than leaf lettuces, we seem to have more consistent good luck hardening them off and transplanting them outdoors early. We can harvest the outer leaves within a few weeks after setting them out. And then the direct-sown leaf lettuce is ready to be thinned, for more extra-early salads.

cole crops

In late February we start the first cole crops indoors under lights, which are up and growing within two to three days. These seedlings grow rapidly under lights, but ideal temperatures are in the 55-60°F range, and our light garden is warmer than that. So we move them outdoors as soon as they have two sets of true leaves. We take them back into a cool room the first few evenings; after that only if night temperatures are forecast to dip below 30°F. Growth is slower initially with this method than with seedlings grown on for several weeks under lights, but we think these plants are sturdier and better able to withstand the shock of transplanting into the open garden, which we start in the last week of March.

For earliest indoor sowing, we always start broccoli, cabbage, and cauliflower. Because the latter is more sensitive to cold and heat, and as a spring-sown crop can be disappointing, we limit ourselves to half a dozen plants at this time. If temperatures stay cool, we are rewarded with six beau-

continued

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continued

tiful, creamy heads. We make three successive indoor sowings of broccoli, about two weeks apart. We have enjoyed equal success with 'Green Comet' at 55 days from setting out, or 'Premium Crop' at 58 days. We start two kinds of cabbage: 'Darkri,' a small but very early type (47 days), and our favorite, 'Heavyweighter' (75 days). We sow only a few plants of each, then a few more of the latter about a month later, as it stands the heat well.

We sow peas outdoors as early as March 1. If the seed is not pretreated with captan, we shake the seeds in a bag with a tablespoon or so to prevent rotting in cold, wet soil. We also dust seeds with an inoculant, and scatter-sow in a trench about 2 in. deep and 4 in. wide. We firm the seed in the bottom of the trench, then cover with no more than an inch of soil. Later, as the weather warms, we hoe up more soil around the base of the plants to keep the roots cool. We make succession plantings in a similar manner, through April 15.

Sowing for Spring Harvest

	Sow Inside	Sow Outside	Transplant Outside
spinach	–	late autumn or until Apr. 15	–
lettuce	Feb. 1 - Mar. 1	Mar. 1 - Apr. 25	Mar. 15 - May 1
peas	–	Mar. 1* - Apr. 15	–
broccoli	Feb. 10 - Mar. 10	–	Mar. 25 - Apr. 20
cabbage	Feb. 10 - Apr. 1	–	Mar. 25 - May 10
cauliflower	Feb. 10 - Mar. 10		Apr. 1 - Apr. 15**
radishes	–	Mar. 15 - May 15	–
beets	–	Apr. 1 - Apr. 25	–
carrots	–	Apr. 1 - Apr. 25	–

*Pea seeds should be treated with captan to prevent rotting in cold, wet soil. Many seed companies now do this.
**Cauliflower is more sensitive to extremes of heat and cold than the other cole crops, so it's more difficult to time for a good spring harvest. (June sowing for fall harvest is recommended for more certain success.)

coverings

Because of the vagaries of weather in late winter and early spring, a gardener bent on "rushing the season" should have some devices for temporary protection in case of severe storms, high winds, or heavy freezes. In addition to commercial hotkaps, milk jugs, and large soda bottles, we have found vinyl window-well covers quite versatile. We also use a primitive cold frame, mostly without a sash to aid in hardening-off. If the weather gets really bad, we staple plastic sheeting over it. Catalogs and, increasingly, garden centers now feature home-garden versions of slit-plastic (for air circulation) row-covers that fit over wire hoops. We save these for the pepper and eggplant seedlings that must have added warmth and protection even in mid- to late spring.

In general, the transplanted cole crops, as well as the direct-seeded spinach and peas, do quite nicely with no protection, whatever the weather, once they are established. This was illustrated for us several years ago, when there was an eight-inch snowfall during the second week of April. We were away at the time, and a concerned friend covered many of the cole crop seedlings with hotkaps, in anticipation of the storm. Those that had been covered were crushed, when the weight of the snow collapsed the hotkaps. Those that remained unprotected, thrived.

microclimates

Even with an advantageous site, microclimate can make an additional difference of one to two weeks in early yield. Search your garden for sheltered spots that trap winter sun to warm the soil. In our garden, we sow the first outdoor planting of lettuce adjacent to a south-facing brick wall. The second planting is also in a sheltered spot at the base of a fence. Sometimes we make an early scatter-sowing of one of the butterhead types, and cover it with two window-well covers fitted together to simulate a greenhouse. Later we transplant the seedlings to different parts of the garden, each with its own microclimate, and thus enjoy a prolonged harvest from one sowing. We follow this same principle with the cole crops, hoping that some will thus mature more slowly, allowing us an extended, rather than just an early season.

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Nancy Greenwood likes every aspect of gardening at her home in Wayne. She has been a judge for the Philadelphia Green City Gardens Contest in the vegetable gardens category since its inception. She studied at the Arboretum of the Barnes Foundation and volunteers on the PHS Hotline.

SPRING PREPARATIONS FOR FALL/WINTER HARVEST

by Jane Pepper

At the peak of the early summer harvest, when you are awash in lettuce, peas, beets and radishes, you must start preparations for the fall crops. With every inch of the garden already under cultivation you may be tempted to ignore the issue and wait and see what happens later in the summer. Resist the temptation. By then it will be too late.

First, let's look at the possibilities and see what you can expect to harvest after the first frost has killed the fruits of summer – the peppers, tomatoes, eggplants, lima beans and squash. Leafy crops such as lettuce, spinach and mustard greens will all resist light frost as will peas. In a warm fall you can harvest salads several weeks into November. Cole crops – cabbage, cauliflower, broccoli, brussels sprouts and Chinese cabbage – are sometimes disappointing in spring because they mature in June and spoil quickly with a sudden flash of hot weather. In fall they hold in good condition until severe frost. Root crops – turnips, beets and especially carrots – can serve as a major source of fresh vegetables throughout the winter. The leek, one of my favorites, is another great winter vegetable. These, however, you must start from seed in spring, as is the case with parsnips.

allocating space

As you sketch out your garden on paper this winter consider not only the summer but also the fall crops. Plant early-maturing

crops such as leafy vegetables, cole crops, snap beans and onions together so you can complete the harvest and turn this area into your fall/winter garden. The balance of the garden, with the eggplants and tomatoes, will not be free in time for planting later crops.

planting techniques

In spring we gardeners have it easy and with a little luck we have respectable results. Planting in summer is different. High temperatures and insufficient moisture make germination uncertain, the ground is depleted of nutrients, and the soil is often hard and crusty. When you sow seeds directly into the garden in summer make sure you soak the soil thoroughly after sowing, then cover rows with a light shading – newspaper or burlap for example – removing it as soon as you see signs of germination.

When transplanting make it as easy as possible on the plants by doing it on a cloudy day, or at least in the evening, then cover the plants with flower pots, bushel baskets or some other form of shading for a couple of days, staying away from black plastic pots because of the heat build-up.

Moisture is also necessary as other plants develop, and I suggest you make your watering as easy as possible so you don't have to drag hoses around when the thermometer hits 90°F. We lay a soaker hose alongside each row of carrots after sowing. A heavy mulch of rotting leaves is also a great help for all fall crops to retain moisture and discourage weed growth.

By late summer you should assume that most of the fertilizer you added to the soil in spring has been depleted. With root crops such as carrots I side-dress in late July and again in late August by sprinkling 10-10-10 down both sides of the each row, then I scratch it lightly into the soil. With transplants such as cole crops I mix a couple of tablespoons of fertilizer into the bottom of each planting hole along with diazinon to prevent root maggots.

From the chart on page 10, you can get some idea of the wide range of vegetables you can harvest from a fall garden and their planting dates. Let's start with those you must sow in early spring.

Leeks: Sow seeds indoors in February in deep pots to allow ample room for root development. When seedlings are a couple of inches tall trim stems in half and fertilize with a standard houseplant liquid fertilizer. In mid-April prepare an 8-in.-deep trench in the garden and partially fill it with compost, mixed with a sprinkling of 10-10-10 fertilizer. To the compost I also add diazinon granules to prevent problems with the maggot that feeds on the shoots and has rendered our crop inedible by fall. Place trenches 30 in. apart and space seedlings 8 in. apart within a row. Before planting, trim both roots and shoots with scissors. As the leeks grow, blanch the leeks by gradually replacing the soil, adding more fertilizer each time you fill in the trench.

To produce long fat white stalks you must continue to blanch the plants. If you have an endless supply of compost, use this. Last year we used leaf mould, which worked well because it blanched the leeks as well as serving as a mulch, holding back weeds and conserving moisture. In late July and again in late August I drench the rows with liquid diazinon, mixed with a soluble fertilizer, to deter the last of the summer maggots and to give the plants a boost at the end of the season. Some gardeners grow excellent leeks, untroubled by maggots. We seem to have to rely on diazinon to provide an acceptable crop.

The leeks will be ready for harvest from September onwards, although the colder the weather the better the flavor and you can keep them in the garden throughout the winter if you cover them with leaves (see additional information on winter mulching in this article under carrots).

Cole crops. To ensure good heads of cauliflower, broccoli and cabbage in fall sow seeds in a flat no later than June 20. Brussels sprouts require more time so you

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photo by Jane Pepper

The gardening partner harvests carrots in January.

EARLY AND LATE

continued

should start them in flats by May 20. Thin seedlings into peat pots when they have one set of true leaves, then transplant into the garden about four weeks after sowing. Chinese cabbage can be sown directly into the garden in late July. With all these crops your challenge will be to control the cabbage worm caterpillar with frequent sprayings of *Bacillus thuringiensis* (sold as Dipel). Last year, when populations were heavy, I also used Malathion, a couple of weeks before the heads were ready for harvest. Light frost improves the flavor of cole crops. Heavier frosts damage the heads so harvest them by mid-November, unless you are prepared to cover them with baskets each night.

Carrots. This is our big winner in winter, although by March I sometimes yearn for a dinner without carotene. Sow seeds directly into the garden from late June through July 10, and be prepared for poor germination unless you keep the soil moist. We sow in wide (9-12 in.) rows, then thin plants when they are a couple of inches tall. In September look out for a large handsome green and black caterpillar of the monarch butterfly that can consume large quantities of parsley and carrot leaves in a short time. Handpick the larva and destroy. One pest that can cause near crop failure with spring planting is the carrot fly whose larvae tunnel through the roots. By planting in late summer you can avoid this fate.

Which variety to select will depend on the depth of your soil. If it's shallow, use one of the short, fat varieties such as Short 'N Sweet or Kundulus. After years of adding organic matter we can grow large deep-rooted varieties and have been very satisfied with Imperator, Royal Chantenay and Danvers.

In our early carrot-growing days we laboriously lifted the crop in early November, froze some and stored the balance in sand in a box in the garage. The crop was soggy and tasteless, and we now enjoy vastly improved results by leaving the roots in the ground throughout the winter under a heavy leaf mulch.

There are a couple of tricks to successful winter mulching. First, if you cover the vegetables too soon you will find yourselves sharing your winter stores with rodents. Wait until we have had a couple of hard frosts (usually around early December), then pile on the leaves. By this time the rodents seem to have found alternative quarters. Be generous with your mulch, piling at least 18 in. on top of the carrots and try to cover the leeks completely. Chopped leaves provide better insulation. After mulching, mark rows with stakes and be sure to move the stake each time you harvest. Digging around in the frozen leaves and cold soil is fun only if you find the hidden bounty.

Leafy crops. Seeds of spinach, mustard greens, lettuce and other gourmet salad fixings such as arugula, corn salad and escarole can all be sown directly into the garden in late July/early August. To hasten germination soak seeds overnight in water. Leafy crops require adequate nitrogren so fertilize them by side-dressing with a granular fertilizer or by using a soluble fertilizer. The latter method is often easier if you mulched the plants. As you sow seeds directly into the garden sow some additional lettuce seeds in a flat. In early September transplant them into the garden to fill in vacant spaces.

Peas. Edible podded and snap-type peas are more successful as a fall crop than the standard varieties. Sow seeds no later than August 10, using the varieties with fewest days from sowing to harvest. With a good fall you will harvest into early November.

Neighbors often treat out-of-season vegetable gardeners with a certain degree of reserve. After all, who else ventures out late on a January afternoon, flash light in hand, shod in insulated boots, head covered in fur hat, to harvest dinner from beneath the snow. You will find, however, if you share a bit of the bounty that the neighbors' attitudes change. I have yet to convert our neighbors into long season vegetable gardeners, but at least they no longer suspect I am bent on removing the silver from their basement when I venture out on a midwinter evening.

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Jane Pepper is president of the Pennsylvania Horticultural Society and writes a weekly column in the Sunday *Inquirer Books & Leisure Section.*

Seed catalogs for long-season vegetable gardeners

W. Atlee Burpee Co.
Warminster, PA 18974

Epicure Seeds Ltd.
P.O. Box 450
Brewster, NY 10509

Harris
3670 Buffalo Road
Rochester, NY 14624

Herb Gathering, Inc., Gourmet Seeds
5742 Kenwood
Kansas City, MO 64110
(previously Demonchaux)

Johnny's Selected Seeds
Albion, ME 04910

Geo. W. Park Seed Co.
Highway 254 N.
Greenwood, SC 29647

Thompson & Morgan
P.O. Box 1308
Jackson, NJ 08527

The Urban Farmer, Inc.
P.O. Box 444
Convent Station, NJ 07961
($1.00)

Horticultural tools and supplies

A. M. Leonard
6665 Spiker Road
Piqua, OH 45356

Mellingers
2310 W. So. Range Road
North Lima, OH 44452-9731

Favorite cookbooks for vegetable gardeners

Green on Greens, Bert Green
Workman Publishing Co., NY, 1984.

The Victory Garden Cookbook, Marian Morash
Alfred A. Knopf, NY, 1982.

Vegetables for Fall/Winter Harvest

	Sowing Date
arugula (rocket cress)	7/15 - 8/15
beets	7/5 - 7/30
broccoli	6/10 - 6/20
brussels sprouts	5/5 - 5/20
cabbage	6/10 - 6/20
carrots	6/15 - 7/10
cauliflower	6/10 - 6/20
celeriac	2/1 - 3/15*
Chinese cabbage	7/15 - 8/5
leeks	2/1 - 3/15*
lettuce	7/15 - 8/15
mustard	7/15 - 8/30
parsnips	2/1 - 3/15*
peas	8/5 - 8/15
spinach	7/15 - 8/30
turnip	7/15 - 7/30

*Start these indoors and transplant into garden in April.

BRING THE GARDEN INDOORS:

Decorating with Flowering Plants



photo by Adam B. Laipson

▲

Photos taken at Meadowbrook Farm, home of Alice and J. Liddon Pennock, Jr. (Captions written by J. Liddon Pennock, Jr.).

The flowering plants massed near the arched area are cymbidium orchids, placed on a short pedestal, surrounded by a cuff of yellow Asiatic hybrid potted lilies with a *Dieffenbachia* sp. masking the mechanics.

An interesting flowering choice by the glass doors (62°F) are *Calceolaria* spp. The shelving allows sunlight through the south-facing window. A moss-lined basket of *Calceolaria* hangs from above.

On the floor to the left of the windows, a well-flowering *Phalaenopsis* sp. with a bird's nest fern at the base.

On the tray in center, *Paphiopedilum* sp. Although some might think it extravagant to have the orchids in such profusion, it is actually not since they outlast most other plants. When the orchids have completed their bloom cycle from early fall to late spring, I move them to a better growing environment, e.g., a cool upstairs bedroom window or the greenhouse.

by Amalie Adler Ascher

If you have a sense of design and an eye for color and scale, the art of decorating your home with flowering plants should come fairly easily. But even if you're not too adept at matching a shirt and tie – either for yourself or someone else – you'll soon discover coordinating nature's hues is less difficult. Live color can do wonders for a room or dark entrance hall, lending brightness and warmth. And although, overall, the effect is better if the shades of the flowers blend in with the scheme of the furnishings, nature's products – unlike clashes in man-made prints that seem to resist efforts at reconciliation no matter what you do – can usually be adjusted.

Flowering plants, by and large, need a healthy dose of light to keep blooms coming, so if you want to display them in less favorable circumstances, let the plants take turns, some recharging behind the scenes in the sun, while other perform on location.

background for color

As trees and shrubs in the landscape provide a background and permanency for seasonal bloom, so too do their indoor counterparts – the dracaenas and dieffenbachias, the Norfolk Island pines, palms and rubber trees – perform a similar function inside. Foliage plants have long been the mainstays of parlor and living room gardening anyway, remaining green and luxuriant the year-round. Their cultural requirements excepted though, foliage plants don't present much of a problem when it comes to composing them into groups. Since they're mostly green, varying mainly in shade or markings, selection is a matter of preference, pure and simple.

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photo by Adam B. Lapson

The Solarium at Meadowbrook Farm.

The purple, pink and lavender *Cineraria* spp. in the foreground surrounding a marble baptismal font replaced the cushion chrysanthemums that graced this spot in early fall. The white cyclamen will flourish from fall to spring under the glass ceiling and 60°F temperature.

The *Exacum* in the terra cotta containers on pedestals will provide flowers throughout the winter. The garlands, *Ficus pumila*. The hanging baskets contain white African violets with needlepoint ivy. The temperature at that elevation is 72°F. These two plants will provide constant winter bloom.

White *Cattleya* sp. hang in basket over marble sculpture. In back (center) white gloxinia is flanked by yellow *Calceolaria*, backed by blue *Browallia*.

photo by Eduard Ascher



A potted variety of gerbera called Happipot is perfectly sized to indoor container growing. A new version of these popular flowers until now only available as garden or florist flowers. Introduced within the last year or two. ◀

A new compact form of the old-fashioned long-stemmed hibiscus. Plants live year after year sending up at least one new bloom every day through the winter if set in a sunny window and fertilized weekly. Blooms, however, last only one day. Foliage is dark, lush and as ornamental as any plant grown for leaves alone. Set on the patio in summer. ▼



photo by Eduard Ascher

how to work with color

No matter which kind of plant you're considering, you can't ignore its qualities of proportion and scale if it's to fit, hand-in-glove, in the space you've picked out for it. Flowering plants, though, need to be in accord with the colors of a setting as well. Unless you're blessed with an innate sense of color or can carry exact shades in your head, you may unwittingly select a plant that knocks your eye out in the shop but strikes a discordant note in your living room. Outdoors, there's greater leeway in mixing hues that are slightly off-key, for they're seen against a broad expanse of sky and greenery that helps to diffuse any disharmony. Compressed into the smaller confines of a room, the mismatch of man-made paints and dyes is somewhat more keenly felt.

While the variations in reds or pinks or yellows are infinitely greater in manufactured materials given the ability to adjust shades by adding pigments in varying amounts, live flowers are for the most part clear and bright. When a plant is set on a windowsill against the outdoors or a plain curtain, the eye can isolate it from conflicting patterns in its surroundings. But if that same plant is seen on a table beside a chair covered in a print whose hues are incompatible with the plant, the clash would be more noticeable.

For example, picture two pots of chrysanthemums side-by-side: one is a variety called Radiant, with golden buff petals, dark red tips and a yellow center touched with green and Cherub, a lavender-pink anemone form. Together they'd hardly make a pretty sight. And yet, in the right surroundings, either one of these plants could enhance the appearance of a room.

In coordinating pinks and reds, notice whether the shade leans toward blue or yellow and avoid mixing the two. Blue and colors containing the hue are known a cool colors, while yellow and its relatives are classed as warm colors. Since the two categories are quite different in character, a more harmonious effect is created if you base a scheme on one group or the other.

injecting sparkle

There are lots of ways to use flowering plants to inject accents of color and sparkle. Standing them around on the floor is the most common arrangement, but if you study your surroundings and look to objects and accessories for inspiration, you'll find many other places where plants would fit in. Perhaps you have a table or shelf displaying a collection of mineral specimens. A pot of amethyst African violets among them would not only seem natural but would enliven the composition as well. Stark white cyclamens would mix well with shells, while tiny fairy roses, streptocarpus or exacum could form a naturalistic setting for a grouping of dainty porcelain figurines.

Imagine how stunning a gilt Chippendale mirror would look flanked by a pair of stately red amaryllis on a sideboard beneath it, or how clever it would be to match calceolarias to the contrasting fringe of the draperies. You could hang a basket of mixed annuals over the dining room table instead of using an ordinary centerpiece, or station lantana standards against a plain wall to simulate the look of wallpaper. The tea cart you've saved as a relic of the old-fashioned way of entertaining makes a space-saving prop for massing spring-flowering bulbs on two levels. Regal lilies in front of a mirror double their numbers free of charge, while a wall treatment composed of a wrought iron holder showcasing Happipot gerberas in the summer and kalanchoes in the winter creates a picture gallery offering changing exhibitions.

For the ultimate in luxury, nothing beats a window draped with sprays of orchids, or even an entrance hall banked with them. (I'll never forget the sight of the front hall of Hillwood, Marjorie Merriweather Post's estate, packed on each side of the door with orchids from her greenhouse, or at another time, when she edged white Madonna lilies with jewel-like cinerarias. Liddon Pennock performs similar feats of showmanship. See photos.) Not everyone, of course, can afford such opulence or has extensive personal greenhouses to draw from, but there are other ways to make an impression. Displaying a pot of a brand-new flower such as lisianthus (derived from an American wildflower called eustoma and related to gentian) or a new strain of hibiscus, fuller, shorter and bushier than its ancestors, is guaranteed to capture attention and put friends on notice that you're up on the latest. Even a single pot of hibiscus – choosing from among apricot Senorita, pink American Beauty or Moesi-

continued



photo by Adam B. Lapson

The Card Room at Meadowbrook Farm.

The hanging basket of *Plectranthus* in the right hand corner is considerably helped by an incandescent light in the ceiling. The same fixture is used in the opposite corner over the collection of plants that thrive in this area.

ana red – with only one flower in bloom is so spectacular, it can be the bull's eye of an entire room.

Take care in mixing plants that their differences are not too pronounced. Look for locations where plants would fit in naturally as if they belonged there, rather than wedging them in between things that must be pushed aside to accommodate them. Measure the space so you'll know what size plant you'll need in height and width. If the area is generous, you have the choice between filling it with one large azalea, for example, or a grouping of hydrangeas or Rieger begonias staged at different levels. You might decide to treat the space as a landscape bed, positioning geraniums at the back and marigolds in front. For a bookcase, you'd have to determine the distance between the shelves before buying a pot to rest there. Likewise for a mantle, whose ledge might be too narrow for a short stock plant in a wide-bottom pot.

Flowering plants like all-green ones add color, grace and texture to an indoor setting, softening sharp lines and hard surfaces and even providing a connecting link between sharply differing elements. They can hide a multitude of sins, too, by screening cracking plaster or peeling paint or filling in for a lack of furniture.

A final point to heed. When standing pots with drainage holes around on the floor or carpet or on furniture, place a saucer underneath to prevent damage to surfaces. The temptation to cover ordinary plastic or clay pots with glazed decorative containers will be strong. But if you do that for any length of time, you risk killing a plant from root rot. Jardinieres, cachepots and even foil papers not only lock moisture in the soil for lack of exposure to air, they also trap water in the bottom, which if not emptied, is reabsorbed by the plant further subjecting it to burn from concentrated soluble salts.

Decorating with flowering plants offers a whole new field of creativity and a way to win compliments from your friends. For more decorating ideas check the list of books about indoor flowering plants on page 34. These and others are available from the Pennsylvania Horticultural Society's library.

Note: The plants mentioned in this article are readily available from most florists.

●

Amalie Adler Ascher is a frequent contributor to *Green Scene*. She has won a number of awards for her articles published in magazines and newspapers, the latest being the Bedding Plants Inc. Award for Garden Writing for her article "Perennials Are Going Places Fast and Furiously" in *Nursery Business* Magazine.

CONTAINER GARDENS FOR WINTER

by Linda Yang

photos by Linda Yang

Winter in the city: left foreground, barberry; background, crabapples. Right foreground, *Euonymous alata*. Right background, willow.

Winter means snarled traffic and frayed tempers for those forced to shovel their way out their front door. But gardeners, at least, are free to enjoy the magic of snow since our winters are all view and no work. Yet rare are the container gardeners who plan with frosty days in mind. With planting a distant dream, this is the time to plot improvements for next winter's scenic pleasure.

bigger is better

No matter if yours is a terrce, balcony, doorway, patio or roof, the secret of a successful winter container garden is to select hardy species only – and plant them in the largest tub you have room for. Since even in their dormant state, both deciduous and evergreen trees and shrubs need minute amounts of moisture and nutrients, the bigger the container, the more soil there is for

continued



Azalea, cotoneaster and floribunda roses in containers go a-wintering on a city terrace.

storage. Soil is also a natural insulator; the more there is, the greater the protection for roots from sudden temperature drop, and rapid alternate freezing and thaw.

Bigness does have limits though with terrace space ever at a premium. And containers must be manageable – which often includes fitting them through a balcony door. So what is a practical, yet life-sustaining container size? In New York City where I garden, winter temperatures may hover about 0°F. and hardy species survive outside in tubs that measure at least 16 inches, both wide and high.

In milder pockets of the Delaware Valley, these plants surely will manage with less. But space and budget notwithstanding, the more generous the tub, the easier the gardener's life the rest of the year; small containers mean that fertilizing and watering chores, through the growing season especially, soon become overwhelming.

winter water

When it comes to watering, it never fails to astonish me that gardeners who conscientiously tend their outside plants through sweltering August dry spells, ignore them absolutely in February. Yet I'm convinced that hardy species in containers succumb not from mid-winter cold, but from lengthy periods of mid-dormancy drought. From autumn leaf-drop through spring bud break, only you can compensate for nature's neglect. So if there's little snow or rain for more than a month – ignore your neighbors who think you're strange – and get outside, early on a day when the temperature is well above freezing and add a bucket of cold water to your overwintering container plants.

You can take advantage of whatever bit of snow does come your way by scooping it from the floor and piling it around the plants. Especially vulnerable to winter dehydration are container species in exposed or windy spots, as well as those shielded from above by a balcony, awning or cornice. Young or recently planted city street trees may also need some care; surrounded as they are by paving, these too may just as well be considered container plants – of sorts.

finding hardy species

There's no mystery to determining which plants will survive a Delaware Valley winter in a container outside – they're the same trees, shrubs and vines you find growing all around you. For any plant that survives the winter locally *in* the ground, will survive the winter *on top* of the ground. When spring planting-time arrives, discuss your choices with a nearby nurseryman, who is sure to stock the locally hardy species. Mail order buffs had best acquaint themselves with the zone maps and hardiness listings that most good catalogs include. When in doubt, select a plant noted as hardy for the next coldest zone.

winter's shapes, textures and tones

Without the distraction of flashy summer color, it's easy to appreciate the three-dimensional outlines, subtle hues and textures that winter's cold reveals. My own container favorites are the weeping trees whose pendulous limbs are wondrous when lightly dusted with snow. There are the cascading cultivars of crab apples and cherries, but don't overlook the weeping Camperdown elm *(Ulmus glabra* 'Camperdownii'), the weeping mulberry *(Morus alba* 'Pendula'), or the weeping Siberian pea *(Caragana arborescens pendula).* Sculptural winter forms also distinguish

I'd be hard pressed to name any hardy evergreen that isn't a container candidate, but if pruning is not yoru favorite task, the dwarf forms are carefree substitutes.

evergreens like the blue Atlas cedar *(Cedrus atlantica* 'Glauca Pendula') and Sergent's weeping hemlock *(Tsuga canadensis* 'Pendula').

Use the prostrate species to soften the edges of the tub, such as the dwarf juniper *(Juniperus procumbens* 'Nana'), *Cotoneaster salicifolius* 'Rependens,' *Skimmia japonica* or a hardy trailing sedum *(Sedum dasyphyllum).* For a change of pace there's the tropical looking sword-shaped leaves of the hardy Spanish bayonet *Yucca filamentosa.*

Rhododendrons too are superb in winter containers although their tightly curled leaves, at the first touch of frost, may hardly be consoling on a bleak morning. Less emotional is the mountain laurel *(Kalmia latifolila),* as well as inkberry *(Ilex glabra),* fire thorn *(Pyracantha coccinea)* and the many hollies that are also hardy evergreens.

But gardeners must not live by winter greens alone and many subtle hues color the winter species. Bronze is the tone of the oval leaves of *Leucothoe* when touched by winter sun. Ditto for many



A New York terrace accommodates a handsome blend of spruce, pines, juniper and crabapples.

azaleas, although to ensure that your selection is one that will color, study nursery stock in early spring, before the new growth emerges. Beware of azaleas from florists; the flowering plants they supply are rarely hardy cultivars.

An invaluable source of winter gold is yellow tone plants like *Chamaecyparis obtusa* 'Nana Aurea,' an Hinoki cypress, and *Thuja occidentalis* 'Lutea,' a sunshiny arborvitae. Keep the winter blues outside too with junipers like *Juniperus squamata* 'Blue Star,' or Koster's blue spruce *Picea pungens* 'Koster.'

I'd be hard pressed to name any hardy evergreen that isn't a container candidate, but if pruning is not your favorite task, the dwarf forms are carefree substitutes.

winter mulching

If you've cleverly chosen only truly hardy species, and the tubs are ample, there'll be no need to clutter your winter scene with eyesores of burlap or other protection. Some gardeners swear by antidessicants – I for one have never bothered with them. But after the first frost, a soil cover of bark chips will help stabilize the temperature and reduce moisture loss. Boughs of evergreen are useful mulches, too, and ideal for decoratively shielding climber roses or vines like clematis from the winter sun. When Christmas days are gone, recycle your holiday boughs onto the tubs outdoors. After which, there'll be time aplenty for settling in by the window, at last, and dreaming up new schemes – for summer.

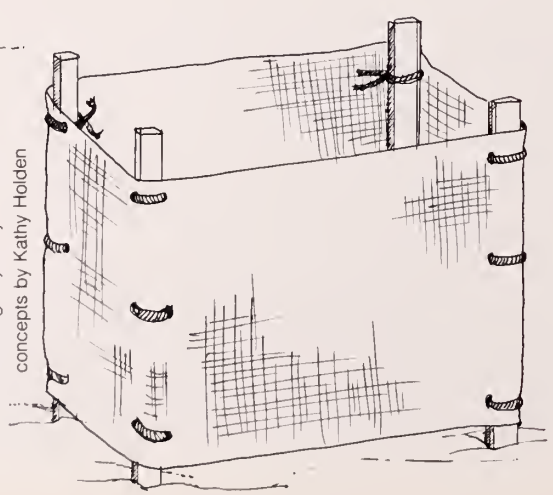
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Linda Yang, a graduate of the University of Pennsylvania, writes about gardening for Thursday's "Home Section" of the *New York Times*. Her *Terrace Gardener's Handbook: Raising Plants on a Balcony, Terrace, Rooftop, Penthouse or Patio*, Doubleday, Garden City, NY, 1975, was reissued by Timber Press in 1982. It is also available through the PHS Library

The Hibernal Gardener

by Howard Holden





drawings by Marybeth Avioli
concepts by Kathy Holden

Sincere gardeners don't succumb to the bullying of Old Man Winter. Instead, they temporarily suspend their love of the aesthetics of gardening and look to the more practical aspects of the art.

One of the first winter gardener's chores is mulching perennials with salt hay or pine needles after the soil has frozen. This keeps the plants from heaving out of the ground during winter's alternate freezing and thawing. If time permits, a 2-in. application of decorative mulch, such as shredded bark or licorice root, enhances the winter appearance of trees and shrubs and it

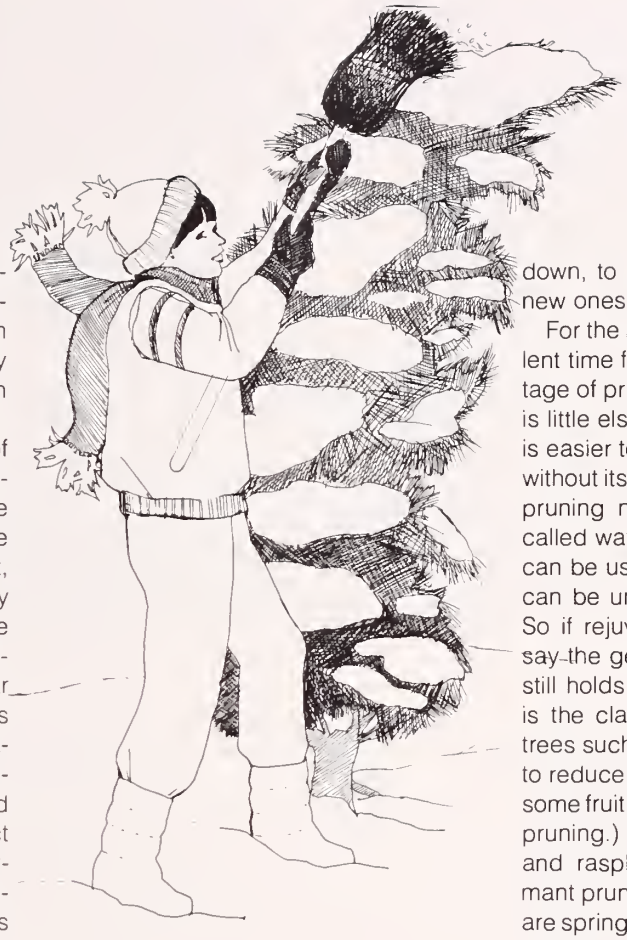
And, as one plow manufacturer recommends, always "plow with the storm." Several attacks during a major storm are easier on you and your equipment than if you try to tackel the total accumulation all at once.

lessens the probability of spring weeds.

Another consideration at this time of year should be protecting shrubs, e.g., newly-planted evergreens, especially boxwood, from winter winds and roadside salt spray. A windscreen constructed of 2 in. x 2 in. lumber and burlap will help prevent the dessication caused by wind and/or salt. Lengths of 2 x 2, four ft. high, are pointed and driven into the ground approximately 6 to 8 ft. apart. Stretch burlap between the stakes and fasten with baling wire (see illustration). This device is also useful for protecting roses or other marginally hardy plants easily damaged by winter winds.

Another technique used to prevent burning from winter winds is spraying an antidessicant on a plant in early winter, and again about 6 - 8 weeks later. The chemical temporarily seals a plant's pores, thus preventing a loss of internal moisture. The fault of this technique is the second application comes at a time when it is rarely warm enough to spray, and also at a time when a plant needs protection the most. Newer antidessicants are being developed so that one application lasts an entire season. Check the label before purchasing.

A liberal application of gypsum around



the base of roadside plantings in late winter will reduce the possibility of salt accumulating in the root zone. The gypsum helps keep soil structure loose, thereby allowing the salt to percolate freely through it.

There are basically three choices of de-icing compounds for the winter gardener. Sodium chloride (Halite), similar to table salt, is the least expensive and therefore the most popular. Like common table salt, however, it can "burn" the roots of nearby plants if used frequently. Calcium chloride (Ice Foe or Mr. Snow), though more expensive, is as effective and safer for use near plants. Lastly are a variety of substitutes such as fertilizers high in nitrogen. Ureaform and 10-6-4 did not fulfill my expectations as to what a de-icing compound should do. Their advantage is they react slowly causing little damage to paved surfaces. Also, plants receive a dormant feeding instead of a salting. Other materials often used on slippery surfaces include wood ashes, cinders, and sand. Although inexpensive, these materials do not melt ice, and they are easily tracked inside.

The most practical and economical approach to choosing the appropriate de-icing compound seems to be an integrated one in which sodium chloride is used for large paved surfaces such as driveways and parking lots, calcium chloride for walks and steps around buildings, and the remainder for the "back forty."

The sometimes cumbersome task of snow removal can be made easier with the use of a snow blower. For small jobs, there are many single-stage blowers, both electric and gas powered, that will take care of the usual snowfalls of this area. Owners of large walks or driveways, however, can rely on the more powerful two-stage snow blowers, or on a snowplow. Anything less will prove useless in time. A light application of oil to a snow shovel's blade will benefit the snow shoveler's back. A film of oil will also keep snow rolling off a plow blade. And, as one plow manufacturer recommends, always "plow with the storm." Several attacks during a major storm are easier on you and your equipment than if you try to tackle the total accumulation all at once.

The everyday household broom is the tool of choice in brushing snow from hedges and other sheared plants. Other plants commonly damaged by accumulations of snow are upright junipers, arborvitae, and boxwood.

Once the plants are protected and the ice and snow are under control, checking the garden tools can be a rewarding winter pastime. The lawn mower and other garden machinery should be serviced now instead of waiting until the spring rush. Cleaning, sharpening, and applying a thin coat of oil to tools preserves them for years to come. Also, taking inventory of fertilizers, chemicals and supplies will help you meet the growing season's problems head-on. Most insecticides, fungicides and herbicides should not be allowed to freeze since this can alter their chemical structure and reduce their effectiveness.

Wash plastic pots and flats now to decrease the chance of carrying over insects and diseases from the previous season. Leave clay pots outside, turned upside down, to help cleanse old pots and cure new ones.

For the hardy among us, this is an excellent time for dormant pruning. The advantage of pruning at this time of year is there is little else going on in the garden, and it is easier to identify the structure of a plant without its leaves. The disadvantage is that pruning now may produce leafy shoots called water sprouts. These young shoots can be useful in regenerating a plant, but can be unsightly on a mature specimen. So if rejuvenation isn't your intention, I'd say the general prune-after-flowering rule still holds true in most cases. Late winter is the classic time of year to prune fruit trees such as apple and pear. (In an effort to reduce the production of water sprouts, some fruit growers now prefer mid-summer pruning.) Also grape vines, any blueberry and raspberry shrubs benefit from dormant pruning. Maple, birch, and dogwood are spring "bleeders," and if pruned before spring, they may ooze a considerable amount of sap, causing a loss of vigor or the death of the tree.

Another winter activity that can help save time in spring is dormant feeding. For example, all ericaceous plants (rhododendron, laurel, holly) will benefit from a liberal application of Holly-Tone now. Other plants such as clematis, peonies, and most perennials can be fed 5-10-5 in late winter. The lawn can be fed with 10-6-4 or top dressed with lime if necessary. Remember to take soil tests every three or four years to avoid excesses of nutrients.

Last, but most important, take the time to contemplate the garden in its entirety. Study the "bones" of the garden while its fundamental design is most exposed. Consider ways to simplify design and/or maintenance. Set priorities for the garden, listing goals that can be met within the coming growing season. Sooner than you can imagine, snowdrops and winter aconite will be whisking you off to spring's wonder.

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Howard Holden is director of grounds at Bryn Mawr College. He is a frequent contributor to *Green Scene*.

PROTECTING CITY PLANTS THROUGH THE WINTER

by Joanne Miller



Foot traffic after the lawn is frozen creates substantial turf damage.



Screening with burlap helps to prevent drying out.

Gardening in center city Philadelphia is challenging because plants must tolerate many stress factors to survive the harsh urban environment. One of the major problems for plants is tolerating and surviving the winter: five months of cold temperature, snow, ice, sleet, rain, winds, shadow casting, heat reflection and snow melting chemicals. Many of these winter stress factors can be dealt with, and we can take some preventive measures to help the plants survive.

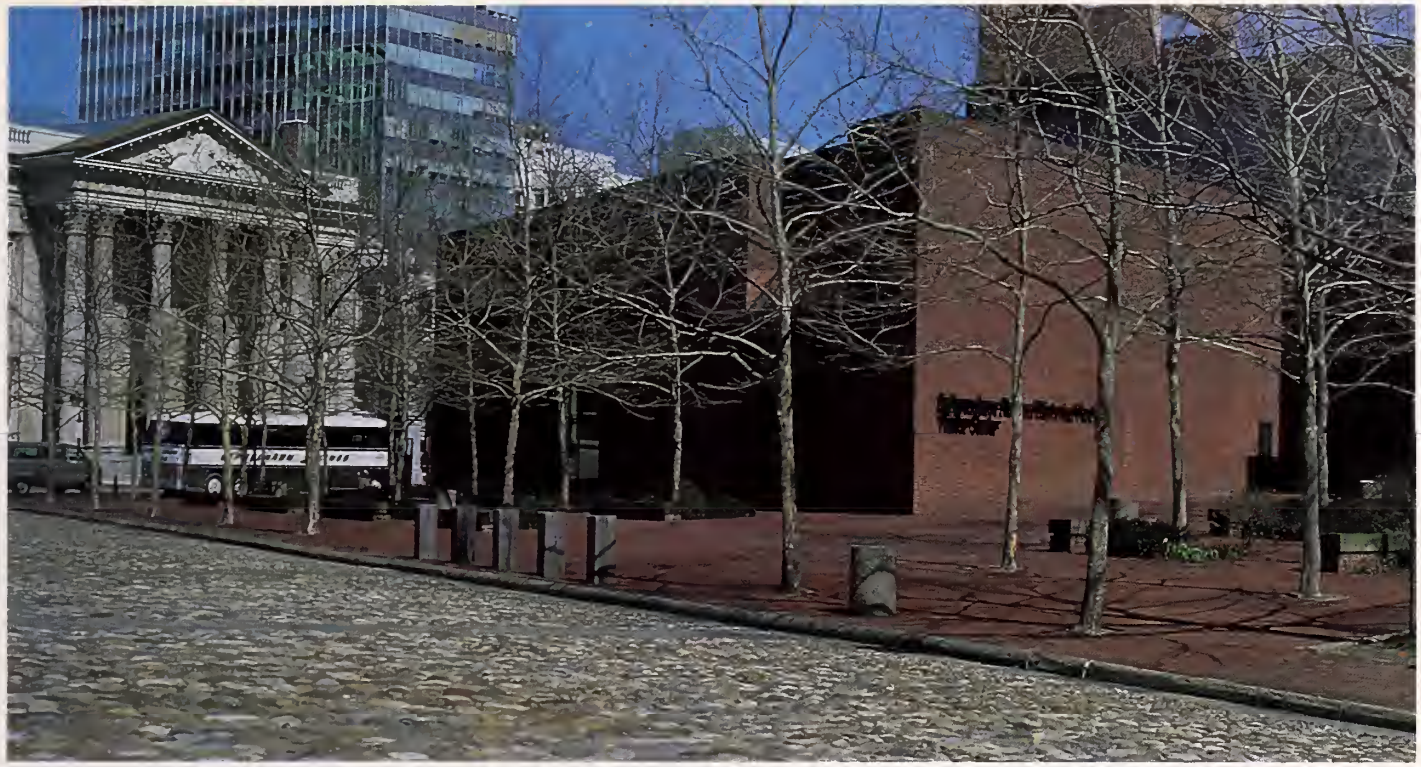
Start by selecting plants for their winter hardiness. The United States Weather Bureau has developed a hardiness map, by zones, for the United States and Canada based on the average annual minimum temperatures. This map is printed in plant catalogs and identification books, color coding each hardiness zone and stating the average temperature for each area identified. The zone number is then often printed alongside plants in catalogs and reference books. If you use the maps and these zone numbers, you can select your plants more effectively.

winter protection

To help your plants survive through the winter some extra protection should be given to all of your plants.

Most important is to make certain the plants go into the winter well watered. Winter winds and cold temperatures dry plants out quickly. When the ground is frozen, moisture is unavailable to the plants. Snow will provide some moisture but only when it melts and the ground is not frozen. This does not usually happen until spring. When the plants are dormant and the ground is frozen, snow acts as an insulator keeping the available moisture in the ground to cover the roots and the base of the plants and to protect them from fluctuating temperatures and winter winds. Don't leave snow in the center of the plant, or on delicate weak branches. Snow is heavy and can break and damage plants very easily. After a storm, brush snow off lightly with a broom from boxwood *(Buxus sempervirens)* and inkberry *(Ilex glabra)* or any other shrubs that might easily break from the weight of the snow.

One way to protect these more delicate shrubs from winter snow damage is to wrap them up tightly in chicken wire. The wire supports the branches so the snow will not weigh the branches down and break them if you cannot quickly clear the snow from them. This supoprt does not look very attractive and to my way of thinking defeats the purpose of having evergreens in your garden for winter color and interest. For aesthetic reasons I no longer wrap the shrubs at Independence National Historical Park, but during each snow storm I do sweep off the boxwoods and any other delicate evergreen that holds the snow. The shiny green foliage of these plants looks so beautiful against the freshly laid snow that the extra work of sweeping is worth it. My garden stays interesting, green and naturally shaped even in the



The most cost effective way to keep city paving clear after snow is through chemicals. These chemicals are hazardous to plants.

cold of winter.

Unlike snow the ice, sleet and winter rain water do not contribute to the welfare of the plants. They are destructive and cause damage that is usally irreparable. Much of this kind of damage to plants is usually caused by lack of planning, poor landscape design or lack of maintenance to roof gutters and drains.

Don't plant under the edge of an overhang to a building or just below the gutters. During the day, the snow on the roof and in the gutters begins to melt. If the gutters and drains are not cleaned out, the melted snow (ice cold water) starts spilling over the edges and falls onto delicate foliage and branches. Plants do not like being watered with cold water and eventually the section being hit by the icy water turns brown and dies. As the day gets colder, cold water freezes up again and forms icicles, hanging from the gutters and overhangs of the buildings as well as on the foliage and branches of the plants directly underneath.

Ice is heavy and easily breaks up plants. Before planting, think of the snow and ice that will be melting from your house or neighboring properties and where it is going to land.

Winter winds are also destructive, especially in the city with so many buildings and streets tunneling and channeling it. To prevent plants from drying out I suggest screening with burlap and spraying with an antidesiccant. I prefer the dark green burlap, it blends in better with a winter landscape. Spray evergreens with Wiltpruf or Vapor Guard to keep winter winds from drying out, browning and burning the foliage. Spray once in late October and then again in early March when the temperature is above 40°F.

Shadow casting and heat reflection are problems that city gardeners must live with. City gardens must tolerate extreme temperature fluctuations. Heat is reflected off concrete, glass, roofs or bricks of neighboring structures or garden surfaces, which then raises the soil and plant temperatures. As the earth moves the sun then goes behind a building causing the temperature of the plants and the soil to drop quickly casting a shadow over the garden and rapidly lowering the air temperature.

Mulching plants and wrapping the trunks of trees and deciduous shrubs can help keep temperatures from fluctuating drastically.

chemicals

Another problem that affects plants in a winter city environment are the snow melting chemicals. The city uses rock salt on the streets, and much of it is absorbed into the tree wells along the street. You'll help these trees if before winter you apply 4 in. - 6 in. of extra mulch on each street tree well. After the winter remove all the mulch and throw it away. Then put a root feeder into the tree well and let the water run for a few hours to leach out the salt build-up.

Another way to help your plants is to use calcium chloride. It melts snow more quickly and at a lower temperature, and it is less toxic to plants than rock salt.

people problems

The biggest problem to plants surviving in public areas during a Philadelphia winter is the general public. They need to understand the ways they can thoughtlessly damage or destroy plants.

When some plants are frozen, they cannot tolerate being stepped on by a human or even by a dog English ivy, winter creeper, periwinkle or turf are especially susceptible. Many times this damage is so severe that the plants must be replaced. Winter fencing can be installed to keep people on sidewalks and off frozen turf or away from groundcover beds. Often the fencing is unsightly, but as time goes by maybe more people will become aware of plants and how sensitive they are, especially during the winter.

Having a city garden survive a winter isn't easy but when the daffodils and the magnolias come into bloom you know that that extra work and time you put into mulching, spraying wiltproof and wrapping your plants was well worth it.

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Joanne Miller is the park horticulturist for Independence National Historical Park in Philadelphia. She is also part owner of a landscape maintenance business, Horticultural Services, mostly servicing customers in the center city Philadelphia area.

THE GREENHOUSE: *A Gardener's Winter Haven*

by Anne S. Cunningham



photo by Edmund B. Gilchrist, Jr.

Patty Wurts's greenhouse is an extension of the house. The straw rug in the dining room is a good transitional element that doesn't show dirt or water tracked from the greenhouse.



photo by Edmund B. Gilchrist, Jr.

Patty Wurts's love of gardening, evident throughout her house, made a greenhouse her top priority when it was time to build.

The vibrant color, fragrance, and warmth inside a greenhouse in winter are guaranteed to produce a smile and a reprieve from the tempest outside. A greenhouse is a haven where dreams of spring find an outlet and where dreams of Flower Show glory are nurtured. It can also be a haven for insects and diseases strong enough to kill every plant, but with reasonable planning and preventive maintenance, a greenhouse can be a source of delight. Talented gardener Patty Wurts says a greenhouse is definitely "a cure for the February blahs."

The traditional free-standing glass rectangle has been replaced by a myriad of greenhouse styles. For the gardener who wants more than a windowsill of plants, greenhouse additions range from glass enclosed window extensions to wrap-around solar rooms featuring potted palms and a jacuzzi. With a southern exposure, single panes of glass or double panes with dead air space in between for insulation can be a source of passive solar heat. Contemporary builders extend kitchens, living rooms, and family rooms by adding a greenhouse-like structure at one end. These additions are ideal for the casual plant lover with easy-to-grow, visually pleasing greenery blending in with family living space.

Many serious growers insist on doors between their living space and a greenhouse addition, allowing the growing space to be isolated in case a toxic chemical spray is needed to control pests or diseases. Doors also help the greenhouse maintain consistent warm, circulating moist air, avoiding the directional blast of dry heat created by an electric heater, fireplace, wood-burning stove or other source of household heat.

"Greenhouses are in my blood," says Patty Wurts of Blue Bell, Pa. "My mother had one. Later I rented one with my sister. When my husband and I decided to add on to our small house, we built a greenhouse first, then added bedrooms for the boys." They put the 9 x 15 ft. greenhouse off their 9 x 12 ft. dining room, aiming for optimum south/southeast exposure.

By the time she ordered her Lord & Burnham greenhouse, Wurts knew from experience exactly what she wanted:

- two vents, one manual in case the motor breaks.
- two doors: one into the house, one screen and storm door to the outside. The latter enables her to take plants out in May without carrying each pot through the house, and the screen door lets in more air during hot spells.
- lights so she can work at night, or share the warmth and beauty of the greenhouse with dinner guests.
- a spigot that mixes hot and cold to get tepid water ideal for seedlings and temperature-sensitive plants.
- an electrical outlet to plug in an emergency heater or tools.
- fin radiation hot water heating system, better for plants than forced hot air, and economical because it produces about 8 times as much heat as the same length of bare pipe.

Wurts eliminated the standard center bench to allow more room for her tall flowering standards.

She works in her greenhouse an hour or two every day, then for "three- or four-hour stretches at least once a week to plant, pinch, and putter around." Many of her Phildelphia Flower Show award-winning rosemary, geranium, and myrtle standards have to be pinched all year-round. Wurts strives to maintain variety and color throughout the winter with streptocarpus, camellia, kalanchoe, brunfelsia, *Evolvulus glomerata,* and *Turraea obtusifolia*. Last year she filled the ends of each side bench with soil and planted cascading nasturtiums and calendulas. Besides radiating brilliant color, these provided excellent cutting flowers for the house all winter, and the nasturtiums could be used as bright, tasty additions to a winter salad.

controlling bloom time

While Wurts enjoys continuous color in her greenhouse, Charlie Gale of Gwynedd, Pa. works for just the opposite. As a major grower and exhibitor at the Philadelphia Flower Show, Gale wants every plant in his three greenhouses to be perfect at the same time in early March. Gale, his son Chuck, Brian Trail, and a small group of experienced horticulturists coddle and coax thousands of bulbs, annuals, perennials, even large trees, into flowering at the designated magic moment. For the 1985 Flower Show, he grew 500 delphiniums to be sure 300 would be just right, and 250 rose bushes to get 150 in top bloom for the opening of the Show.

After 15 years of Flower Show experience, Gale leaves nothing to chance, and very little up to Mother Nature. His greenhouses have different, precisely controlled day and night temperatures, according to the varying needs of roses, delphinium, monarda, heliospis, lupines, clematis, veronica, and many others. Each bench is covered with the Biotherm (Biotherm Engineering, Petaluma, CA 94952. (707) 763-4444) system of hot water forced through rubber hoses to raise the soil temperature in the pots to a level warmer than air tem-

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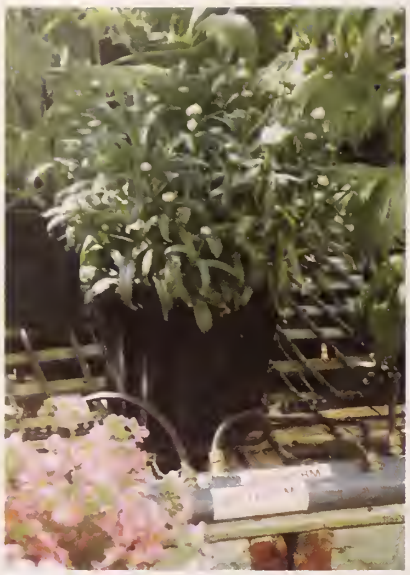


photo by A. S. Cunningham

Plants are set on Gale's open-slatted bench covered with Biotherm® pipes.



photo by A. S. Cunningham

Charlie Gale's CO_2 generator and a plastic tunnel for forced air.

perature. (A similar product is available in the East from Bio-Energy Systems Co., 221 Canal St., Ellenville, NY 12428. (914) 647-6700.) Four different thermostats control the benches in each house so that soil temperatures can vary by a few degrees depending upon each variety of plant's needs for optimum root growth.

All houses have lights on timers up to 18 hours per day, as necessary. Gale prefers 500 watt high intensity mercury vapor lights. The greenhouse that's used to force perennials even has a carbon dioxide unit to complete the photosynthesis process normally orchestrated by Mother Nature. During the summer before the Flower Show, refrigerators are used for biennials to simulate their dormant period. When the potted plants are brought into controlled houses, the soil temperature is gradually increased to 50°, then 60° as needed. A cool, dark garage with a cold concrete floor helps hold back plants that start to bloom ahead of schedule.

problems

Gale has to be absolutely sure his plants are disease-free in order to take them into the Flower Show. Whitefly, aphid, scale, spider mite, and *Botrytis* (see box) are a few of the most common greenhouse plagues. Gale has developed a strict routine for good greenhouse maintenance and plant health.

Before anything goes into his greenhouses in the fall, he applies Monsanto's herbicide Roundup to kill any lurking weeds. The benches are made of open-spaced wooden slats so fallen debris and water can't accumulate. Every single plant, in each of the three greenhouses, is watered by hand. This helps eliminate over-watering, under-watering, over-fertilizing, water and fertilizer marks on leaves and flowers, and excess moisture where disease can breed. Greenhouse rules forbid hoses on the floor and hose nozzles must be solidly *off* when not in use. Fans and vents in each house guarantee the fresh air flow necessary for good growth and to control the humidity. All pots, flats, and potting mixtures are sterilized before they're used. Regular applications of fungicide and insecticide sprays, bombs, and systemics help keep the greenhouses and plants disease- and insect-free.

Patty Wurts tries to avoid strong chemicals. She hangs yellow plastic pest strips to catch flying insects and likes the natural repellent qualities of her rosemary and salvia plants. But preventive maintenance is essential, especially keeping benches, walkways, and floor space clean and debris-free.

Bill Delafield, manager of Weldon Nursery, Bryn Mawr, Pa., says "If you can see a problem, it's already serious. Don't delay. Segregate and treat sick plants, or throw them out. And don't touch other plants after working with infected ones." Delafield washes the concrete walkways of Weldon's greenhouses with industrial disinfectant several times each winter, as an additional preventive measure.

emergencies

No matter how conscientious a greenhouse owner is, there are occasional problems that border on disaster. Gale tells of one year, six weeks before the Flower Show, when his heating system failed during the night, and he lost almost everything. "We had to go all over the country to find replacements in the short time before the Show," he says. "Never again."

Since then he has installed a back-up generator with spare motors and spare transformers for the heating units. A telephone alarm system is tripped if the greenhouse temperature drops below 40°F, and a tape records the time, temperature, and any noise, in case of intruders. (Thermalarm Products, Center Ossipee, NH 03814, or through E. C. Geiger Co., Harleysville, PA 19438-0332, phone 256-6511).

There are so many variants on alarms and automatic systems, they can do everything. Alarms can be as simple as a temperature-triggered bell that goes off (also Thermalarm), a radio-controlled unit like a doctor's beeper (which the greenhouse owner can carry around or give to a neighbor), or they can be part of a fully monitored security system, like Westec, with temperature change, movement, and water constantly monitored. This covers the rare, but equally devastating problems of broken water pipes or extremely high temperatures – sounds strange in winter, but if it's a very sunny day with snow reflection, and the greenhouse with southern exposure is tightly closed and insulated, and the fan/vent system breaks, plants can be irreparably baked and burnt.

Bill Delafield has a kit for winter emergencies, such as a tree branch falling through the greenhouse roof. Once he has been notified by the alarm system, he still has to save the plants. His kit includes a roll of heavy duty plastic sheeting, duct tape, a container of the anti-transpirant Wilt-Pruf, and an auxiliary heater. As part of a preventive maintenance program, Delafield recommends checking greenhouse temperature gauges each fall when plants are brought inside, because even though the alarm may work, if it is triggered by a temperature gauge that's 20 degrees off, it's not much good.

greenhouse tips

Greenhouse owners love to share their personal discoveries with each other, whether that discovery is a unique plant, or a special trick of greenhouse maintenance and plant enjoyment. Here are just

Beware of *Botrytis*

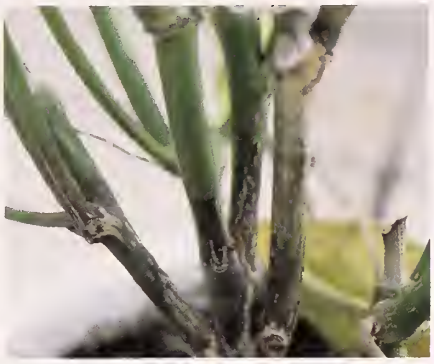
Perhaps the most insidious greenhouse disease is *Botrytis*. This fungus exists in virtually every greenhouse, thrives on live plants or on dead plant debris, and likes any temperature above freezing. Geraniums, cyclamen, fuchsia, exacum, and poinsettias are particularly susceptible.

Versatile *Botrytis* grows on seedlings, stems, leaves, or flowers. Wilting lower branches, soft brown cankers on stems, stem lesions, spotting and decay on flowers or leaves are strong indications of its presence. Eliminating the disease is almost impossible; control is the best any gardener can achieve.

But don't despair – common sense goes a long way toward controlling *Botrytis*. Adequate space between plants, and fans to keep the air circulating are good preventive measures. Bench, floor space and walkway sanitation are essential. An obvious, boring, but necessary preventive task is to constantly pick up fallen leaves and petals.

It's wise to keep the humidity below 80°/85°; *Botrytis* spore germination and infection can occur wherever there is condensation on a plant.

The final step is fungicide application. Charlie Gale uses Benlate at regular intervals, and increases the frequency if the weather's been cloudy and the greenhouses don't have a chance to dry out.



Tan cankers develop on poinsettia stems that have been attacked by *Botrytis*.



Botrytis invasion under the dense canopy of this cyclamen has caused a portion of the plant to collapse.



A favorite food of *Botrytis* is flower tissue; here it has chosen lily petals.

photos by Margery Daughtrey

a few:

• If you want additional insulation, use the Air Cap system of "pop paper" (like plastic bubble packaging) and secure it by wedging bamboo plant stakes between the verticals of the greenhouse support structure. While some consider bamboo stakes unsightly, the stakes leave no marks as would glue or tape when removed in spring. Occasionally the paper leaves a residue, but it's easily removed with an ammonia solution.

• For optimum growth control, use a high-low thermometer, available at any good garden center, to record the maximum and minimum temperatures in your greenhouse during a given 24-hour period.

• Plant propagation is easy, fun, and rewarding, when done correctly. A very good book covering everything from seeds and cuttings to divison, grafting, even tissue culture is Lewis Hills's *Secrets of Plant Propagation.** Hill tells of his mistakes as well as his successes in a manner that inspires the experienced gardener to greater heights, and a brown thumb to try just one more pack of seeds.

• Common sense is the key to good winter greenhosue care: Keep it as clean as your kitchen (that's relative, of course). Avoid high humidity and puddles where fungus can start. Have back-up systems for anything important that can break – because it will.

• A ground fault circuit interrupter like Quick-Gard (at hardware stores or from E. C. Geiger Co.) is a simple, life-saving investment that eliminates the chance of shock when working where there's water and electricity.

Colorful flowers, lush foliage, trained topiaries, herbs and other culinary delights are the pride of the greenhouse owner. The joy of a greenhouse in winter is limited only by the space. Common sense and a regimen of regular maintenance can overcome almost any problem, and the results are well worth the effort.

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*Available through PHS Library and wherever garden books are sold, or from the publisher: Garden Way Publishing, Schoolhouse Road, Pownal, VT 05261. Cover price $12.95 plus $1.75 postage and handling for paperback; hardcover $20.00 plus postage.

Anne Cunningham, a member of the PHS Publications Committee, writes frequently on garden subjects. Her work appeared recently in *The Philadelphia Inquirer Annual Garden Guide*.



photo by Chris Woods

The Swan Pond at Morris Arboretum

Public Gardens to Visit on a

Last January on a cold gray English afternoon I braced myself against the chilling winds of East Anglia and set off for The Cambridge Botanic Garden. I had read about their new Winter Garden and I was determined to see the landscape they had designed to tempt visitors to a distant corner of the garden. My curiosity was richly rewarded, for the garden I found was a beautiful blend of form, texture and color, created with plants that were particularly handsome in the depths of winter. I realized how fortunate I was to experience this ambiance in January, when the leafless stems of the willow and dogwoods were most colorful, and the evergreens in their winter plumage glowed in the golden, low-angled sunlight. Later in the year these subtleties would have been lost among lush foliage and competing flowers, so I treasured the opportunity to study the composition of the landscape and the intrinsic beauty of the plants.

Returning to the United States inspired, I wondered about special winter attractions that might exist in public gardens closer to home. Through my work with the Scott Foundation I was already aware of the pleasures of the Frorer Holly Collection in the snow, or tracing the silhouette of an American elm against the sky. I vowed to investigate other public gardens, and began a weekend campaign to visit places within a day's trip of my home in Delaware County, Pennsylvania.

In my travels I discovered no shortage of places to visit during those seemingly long winter months, when cabin fever sets in, and you have just redesigned your vegetable garden for the tenth time. The variety between gardens is considerable, and from the list the horticulturist, bird watcher, hiker, skier, photographer or casual sightseer should find something of interest.

Readers should determine their preferred winter activities before setting off to visit a garden. Some, such as the gardens of the Morris County Park Commission, will have greatest appeal for the hiker and cross-country skier. Longwood and Duke Gardens on the other hand are primarily an indoor experience and may appeal to a broader range of garden enthusiasts. Pick your destination carefully and dress accordingly.

For rugged souls who thrive on hikes in the crisp air I recommend visiting the Tyler Arboretum, the Morris Arboretum and the Scott Horticultural Foundation, all located in the Philadelphia area. Each has interesting collections of specimen trees and shrubs, many of which are spectacular in the winter. One frosty Sunday morning I had the Morris Arboretum all to myself, and I discovered trees I had never noticed before because they were highlighted by the stark white snow and bright blue sky.

Of the three, the Tyler Arboretum permits cross-country skiing on marked trails, with the 25-acre Pinetum being a favorite spot. Bird watchers will also enjoy walking the trails, possibly catching a glimpse of a bluebird in the winter sun.

In northern New Jersey I recommend cross-country skiers and hikers to three gardens administered by the Morris County Park Commission. Frelinghuysen, Bamboo Brook and Willowwood Arboretum all permit skiing on the grounds, but are closed on weekends during the winter. It would be wise to call ahead to check on conditions before setting out for a day trip.

Some gardens offer the visitor a choice between indoor and outdoor environments. We visited the Horticultural Center at Fairmount Park on a day when the outside temperature never rose above 20°F, and after a brisk walk around the arboretum, stopping to photograph the Japan-



photo courtesy Brookside Gardens

◀ Brookside Gardens at holiday time

Winter sunbathers at the Horticulture Center at Fairmount Park ▼



photo by Judy Zuk

Cold Winter Day

by Judy Zuk

ese Garden in the snow, we entered the greenhouse and were greeted by lush growth and warm tropical smells. Even my recalcritant non-horticultural guest smiled with delight as he stripped off his jacket and sat on a bench and basked in the sun. As I explored the production houses and cactus collection he daydreamed of tropical islands and warm summer days.

Brookside Gardens in Wheaton, Maryland provides similar contrasts in climatic conditions. Two conservatories located near the Visitor Entrance offer warmth and fragrant displays. I suggest that a visit begin with a walk across the garden to the Japanese-style tea house located on an island in the Gude Garden. From here you can admire vistas and the landscape on a frosty day. On the way back to the conservatories you may find "winter flowering" shrubs such as witch hazels and hardy jasmine in flower on a mild day in late February.

In planning a visit to Washington, DC, you can spend the morning inside the conservatory at the U.S. Botanic Garden, then spend some time outside in the afternoon, exploring Dumbarton Oaks. Although Dumbarton Oaks is most beautiful in the spring, a visit to the garden in the winter allows the opportunity to study the genius of Beatrix Farrand's design. If time permits the museum of Byzantine and Pre-Columbian Art is also well worth a visit.

Finally, for those who wish to immerse themselves in numerous conservatories, filled with thousands of spring flowers and tropical plants, I recommend Longwood, New York Botanical Garden and Duke Gardens. Each has its own character, and by visiting all three you would not be duplicating experiences.

Suggested List of Gardens to Visit in the Winter

Many of the gardens described below have special events throughout the winter. Call or write directly to the gardens for complete listings of their activities, and plan your visit to coincide with a free lecture or musical concert.

PENNSYLVANIA

The Horticultural Center of Fairmount Park

North Horticultural Drive, off Belmont Avenue, West Fairmount Park, Philadelphia, PA 19131

Phone: 215-879-4062

Hours: Monday through Friday: 9:00 am to 3:00 pm
Saturday and Sunday: 9:00 am to 12:00 noon

Admission: Donation

Opened in the fall of 1979, the Horticulture Center is a modern greenhouse complex with changing seasonal displays and permanent collections of tropical foliage plants and cactus, maintained by the Philadelphia Cactus Society. The greenhouses are located in the 22-acre Arboretum, with many specimen trees dating back to the Centennial-era. The Japanese House and Garden are closed in the winter, but there are many fine views into the garden from the Arboretum.

Longwood Gardens

Route 1, Kennett Square, PA 19348

Phone: 215-388-6741

Hours: Open every day of the year. Conservatories open 10:00 am to 5:00 pm, and frequently later for special events and during the holidays. For a full listing of times and events, send a self-addressed, stamped envelope to: Schedule, Longwood Gardens, P.O. Box 501, Kennett Square, PA 19348.

continued

Admission: $5.00 adults, $1.00 children 6-14, under 6 free

Under four acres of glass thousands of plants create an environment of perpetual spring. In January masses of fragrant bulbs fill the display areas. Permanent displays that are particularly delightful in winter include orchids, roses, camellias, acacias and desert plants. Dress in layers, for there is a brief walk from the entrance to the warmth of the conservatories.

The Morris Arboretum of the University of Pennsylvania
Hillcrest Avenue, Chestnut Hill, Philadelphia, PA 19118

Phone: 215-242-3399

Hours: 10:00 am to 4:00 pm. Closed Christmas and New Year's Day.

Admission: $2.00 adults, $1.00 senior citizens and children 6-12, under 6 free.

This beautiful Victorian landscape garden offers the winter visitor a fine collection of rare trees, linked together with fine garden architecture and modern sculpture. Bark Park and a walk along the Wissahickon are lovely on a snowy day. Beginning in December the Widener Center will house an exhibit on bark. Call for information on open hours for the Widener Center. Unfortunately the Victorian Fernery is closed for restoration until 1987. Be sure to visit it when it reopens.

The Scott Horticultural Foundation of Swarthmore College
College Avenue, Swarthmore College, Swarthmore, PA 19081

Phone: 215-447-7025

Hours: Grounds open all year, dawn to dusk.

Admission: Free

The arboretum on the Swarthmore College campus features majestic specimen trees and collections of garden-worthy plants. Of special winter interest are the Viburnums, the Frorer Holly Collection and the Wister Solar Greenhouse.

John J. Tyler Arboretum
515 Painter Road, Lima, PA 19037

Phone: 215-566-9133

Hours: Grounds daily, 8:00 am to 5:00 pm. Closed Christmas Day.

Admission: $2.00 adults, $1.00 children.

Seven hundred acres of rolling countryside and woodland, with 20 miles of trails for hiking and cross-country skiing. Many fine specimen trees date back to the 1800's and are an easy walk from the Wister Education Center. The Tyler has a full schedule of winter activities, from self-guided Holly Walks to a Maple Sugar Festival. Call for a complete schedule of events.

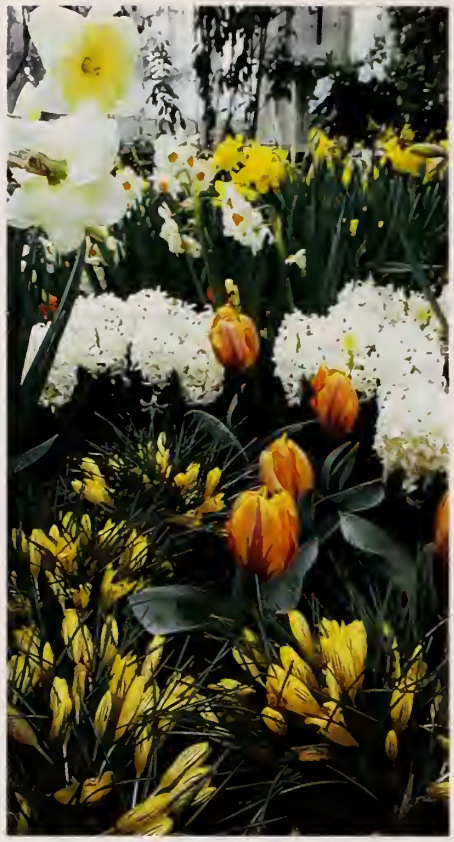


photo by Allen Rokach

The New York Botanical Garden in March

NEW JERSEY

Frelinghuysen Arboretum
53 East Hanover Avenue, P.O. Box 1295R, Morristown, NJ 07960

Phone: 201-829-0474

Hours: Grounds Monday to Friday 9:00 am to 4:30 pm. Closed public holidays.

Admission: Free

This former country estate, now under the administration of the Morris County Park Commission, is a beautiful place for hiking and cross-country skiing, among natural woodlands and developing plant collections. Easily reached by car. Also under the administration of the Park Commission are **Bamboo Brook Outdoor Education Center** and **Willowwood Arboretum,** located off Longview Road in Chester Township. Although extremely beautiful in the winter and ideal for cross-country skiing and hiking, their entrance roads can be difficult to negotiate in bad weather. For directions to the gardens and a map of trails contact the Frelinghuysen Arboretum.

Duke Gardens
Route 206, Somerville, NJ 08876

Phone: 201-722-3700

Hours: Open October 1 to May 13, every day except Christmas and New Year's, 12:00 noon to 4:00 pm. Advance reservations are required, and entrance is permitted by scheduled guided tours only.

Admission: $5.00 adults, $2.50 senior citizens and children 6-12, under 6 free.

In one acre of conservatories Duke Gardens offers eleven different gardens, each depicting a different style. Included are a French garden, Chinese garden, English garden complete with traditional border, and an Indo-Persian garden. All are impeccably maintained and provide a welcome relief from the cold dark months of winter. The tours last about one hour.

NEW YORK

New York Botanical Garden
Southern Boulevard, Bronx, NY 10458

Phone: 212-220-8700

Hours: Conservatory open every day, 10:00 am to 4:00 pm.

Admission: Grounds free. $2.50 parking fee. Conservatory $2.50 adults, $1.25 for children and senior citizens. Free on Wednesday.

The winter highlight at NYBG is the Enid A. Haupt Conservatory. Inspired in design by the Crystal Palace in London, the structure was built in 1902 and restored in 1978. The glass dome rises 90 feet above the Palm Court, a splendid example of Victorian cast iron architecture. The main display house changes seasonally, and from January to April features colorful bulbs and perennials. Eleven connecting galleries include the permanent displays of palms, the fern forest, desert house and tropical plant collection. The garden can be reached by public transportation from Manhattan, via the Metro-North Harlem Line local from Grand Central Station.

MARYLAND

Brookside Gardens
1500 Glenallan Avenue, Wheaton, MD 20902

Phone: 301-949-8230

Hours: Every day except Christmas, 9:00 am to 5:00 pm.

Admission: Free

Two conservatories are used for changing displays. From January to March the Winter Show is highlighted by masses of fragrant plants such as primroses and freesias. The grounds are beautifully landscaped and contain many fine collections of trees and shrubs, with views across ponds and gentle terrain.

WASHINGTON, DC

Dumbarton Oaks
1703 32nd St., N.W. Entrance to garden on 31st and R Sts., Washington, DC 20007

Phone: 202-338-8278

Hours: Daily 2:00 pm to 5:00 pm. Closed Christmas and New Year's Day. Museum open 2:00 pm to 5:00 pm, closed Mondays.

Admission: Free November to March.

This garden was designed by the eminent landscape architect Beatrix Farrand. In the winter the structure of the garden is revealed, this hilly Georgetown site having been sculpted with balustrades, terraces and pergolas, punctuated by fountains, urns and plants. It resembles Sissinghurst in that it is a series of rooms, each with its own character. Harvard University now owns the garden and house, which serves as their museum of Byzantine and Pre-Columbian Art.

U.S. Botanic Garden
Maryland Avenue and 1st St., S.W., Washington, DC 20064

Phone: 202-225-7099

Hours: Daily 9:00 am to 5:00 pm

Admission: Free

Located at the base of Capitol Hill, the U.S. Botanic Garden is a wonderful place to include on a winter's visit to Washington. The conservatory houses permanent collections and changing seasonal displays. Of interest to Philadelphians is the Bartholdi Fountain, which was originally exhibited at the 1876 Centennial Exposition in Fairmount Park. The Botanic Garden offers free horticultural classes throughout the week, and no pre-registration is required. Call ahead for a schedule of classes, and take advantage of this free offer while visiting the garden.

• • •

My list is not meant to be comprehensive, but represents the highlights of my travels. I have deliberately not discussed special holiday displays at gardens, for that is a subject worth its own article. Check with gardens in your area to find out if they have special activities or exhibits for the holidays, and to determine if their hours of opening vary during this season. For more information on places to visit for holiday displays I refer you to *Green Scene*, Vol. 11, No. 2, November/December 1982.

If your favorite winter spot was not included in my list do not despair. Omission should not imply that a garden is not worthy of a visit. Part of the fun of exploring a garden "off season" is feeling that you have a special claim on the place. Why not investigate your local public garden this January, and discover the treats that may be hiding in the winter landscape.

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photo by Allen Rokach

The New York Botanical Garden in January

Judy Zuk is the director of Scott Horticultural Foundation at Swarthmore. She likes to visit gardens everywhere and has recently led a tour with her husband Chris Wood to England She is on the Education Advisory Committee of the Morris Arboretum and chairs the Visiting Committee of Frelinghuysen Arboretum.

birds in the winter



photos by Marvin B. Clymer

Cedar waxwing on American holly

Winter is not a happy time for gardeners; the once glorious garden withers under a blanket of cold. So it's no surprise that many gardeners turn to birds to ease the winter doldrums – cultivating colorful cardinals and blue jays to replace the scarlet sage and lupines. Like plants, birds have some basic survival needs: food, water and cover (shelter from the weather and predators). By providing for those needs, the winter garden can become a center of lively activity, color and cheerful calls.

The most obvious way to attract birds is to put up feeders and keep them full of seed through the winter months. This fare is enjoyed by the seed-eaters such as blue jays, cardinals, chickadees, mourning doves and sparrows. On the other hand fruit-eaters, like mockingbirds, robins and cedar waxwings, turn up their bills at bird seed. The best way to attract them is to plant berry-producing shrubs and small trees around your property. The nice thing about planting for the birds is that after the initial time and expense of landscaping, little maintenance is required, unlike feeders that usually require daily attention throughout the winter. Once established, these plants will produce annual crops at virtually no cost. If the right plants are selected, a wide variety of both fruit-eaters and seed-eaters can be provided for, not only during the winter months, but throughout the year. The important thing is *variety* – the more variety in plants, the more variety in birds. In addition to supplying food, plantings will provide important nesting and roosting spots throughout the year and generally beautify your yard.

Most plants will produce seeds or berries in autumn, a period of great abundance. But it is important to have food available throughout the year. Like humans, birds prefer some foods to others. Their favorites, such as dogwood berries, are promptly eaten in the fall, leaving the less desirable ones for the winter months ahead. The most critical time of the year is late winter when the weather can still be severe. The birds then need to eat a lot in order to keep warm, at a time when the food supply is running low. Although it seems contradictory, it is *most* important that we provide plants with less desirable berries and seeds that will still be available for late winter consumption. Once we have covered this period, then we can direct our atten-

garden

by Marvin B. Clymer

tion to other times of the year. I'm concerned here with those plants that provide food during the winter in Pennsylvania and nearby states. They can be broken into two categories: berry-producers and seed-producers.

the berry-producers

The berry-producers include a wide variety of shrubs and small trees, many of which are widely planted as ornamentals. Though considerable research has been done on avian food preferences, some disagreement remains over which plants are of most value to the birds. Despite the discrepancies, certain plants *do* stand out in their ability to attract songbirds during the harsh months of winter.

Beginning with small shrubs, coralberry *(Symphoricarpos orbiculatus)* is noteworthy. Although it grows only 2-5 ft. tall, its pink berries are eaten through fall and early winter by 14 kinds of birds, including pine grosbeaks, pheasants and evening grosbeaks. The low growth habit of the cotoneasters make them well suited to embankments and rock gardens. Fox sparrows, purple finches and robins enjoy their fruit. The red berries of the thorny Japanese barberry are seldom touched until late winter when there is little else to feed upon, making them a good emergency source of food for nine species of birds, including juncos, mockingbirds and cedar waxwings.

Among the medium sized shrubs, bayberry *(Myrica pensylvanica)* is probably the best. Although the gray, waxy berries are not as showy as those on other shrubs, they are consumed by 25 types of birds and are a preferred food for carolina wrens, bluebirds and downy woodpeckers, to name a few. This highly adaptable plant will thrive in almost any soil from swampy ground to sand dunes. Widely planted as an ornamental, the fire thorn *(Pyracantha* spp.) is avidly consumed by 17 species, especially late migrating robins, which are sometimes induced to spend the winter by a good supply of berries.

A taller shrub, autumn olive, is widely recommended as an excellent berry-producer. Its reddish-brown fruits usually last into mid-winter, providing food to 26 kinds of birds, such as hermit thrushes, cardinals, cedar waxwings and bluebirds. It does fine on dry, sandy soils and is good for screening. Although it is not mentioned

continued



▲ Barberry berries with ice. An emergency source of food, not used until late winter when there is little else for the birds to feed upon.



Cardinals like the autumn olive, whose fruits last into mid-winter.



photo by F. J. Strawbridge

Robin forages on Washington hawthorn.

in many books, I have found the privet *(Ligustrum* spp.) to be a reliable source of late winter food eaten by goldfinches, house finches and mockingbirds. You can get a pretty good idea of the severity of a given winter by noticing how many berries are left on a privet bush in early spring. Unfortunately for the birds, most people prune their privets regularly, thereby eliminating their fruiting ability altogether.

The holly family *(Ilex* spp.) contains several members that are prized as ornamentals and enjoyed by the birds. Most have shiny, evergreen leaves that contrast beautifully with brilliant, red berries, which usually last until spring. The American *(I. opaca)* and English *(I. aquifolium)* hollies can eventually grow into 40-foot trees. Once their berries have been sufficiently softened by the weather and other food has become scarce, 12 bird species will feed on the trees, especially cedar waxwings. The Japanese holly *(Ilex crenata)* lacks the spiny leaves of other hollies and produces an abundant supply of tiny, black berries which have helped many a mockingbird through the winter. The winterberry *(Ilex verticillata)* makes up for its deciduous habit with clusters of scarlet berries, which are dramatic under a snowy mantle. It prefers moist soils.

In the small tree category the crab apple *(Malus* spp.) tops the list. The showy spring blossoms change into tiny apples that 26 different kinds of birds enjoy, especially evening grosbeaks, red-bellied woodpeckers, waxwings and pheasants. Some prefer just the fruit, while others eat both seeds and fruit. The sargent crab *(Malus sargentii),* which only grows about 8 feet high and bears small, red fruits, is also a good variety for the birds.

Hawthorns *(Crataegus* spp.) are widely planted for their red, orange or yellow berries, which are consumed by 18 bird species. The Washington hawthorn is one of the most resistant to rusts and is a good food producer.

If you are looking for a good, berry-producing vine to cover a wall, embankment or trellis, Virginia creeper *(Parthenocissus quinquefolia)* is highly recommended. As the scarlet autumn leaves drop they reveal clusters of small, blue berries, which are gobbled up by 35 types of birds, including fox sparrows, robins, mockingbirds and red-bellied woodpeckers.

Dioecious plants, like the hollies, will not produce berries unless both male and female plants are present. In contrast, many plant species have both male and female parts on the same plant. Therefore, an individual can produce a few berries, but will usually do much better when a second plant is nearby to allow for cross pollination. Generally speaking, most berry-

producing plants fruit best in full sun.

seed-producers

In addition to plants that supply berries, it is also important to have seed-producers for the cardinals, blue jays, chickadees, nuthatches and other seed-eaters. The large trees, such as oaks, beeches and maples, develop seeds that are eaten by birds to one degree or another. Most of their seeds, however, have disappeared by December. Just a few of them carry seeds into mid-winter. The yellow-poplar, or tulip tree *(Liriodendron tulipfera),* will continually drop seeds into March to be consumed by bobwhites, evening grosbeaks and cardinals. Not usually considered a good ornamental tree, the box elder *(Acer negundo)* is also a valuable winter food source for grosbeaks and purple finches. The birches clearly stand out in this category. Their seeds are enjoyed by 23 kinds of birds, particularly goldfinches, pine siskins, nuthatches and fox sparrows.

Most gardeners spend their summers cultivating good, seed-producing plants without knowing it. Many popular flowers will produce useful crops of tiny seeds for juncos, white-throated sparrows and song sparrows if given a chance to ripen at the end of the growing season. Some flowers listed for seed production are calendula, California poppy, coreopsis, cosmos, gloriosa daisy, marigold, zinnia, asters, columbine and black-eyed susans. The most sought after of garden variety seeds are probably the nutritious sunflower seeds. I have even seen cardinals hovering like hummingbirds to get at the ripe seedheads.



photo by Marvin B. Clymer

Black alder *(Ilex verticillata)*

Many seed-eaters depend heavily on seeds of grasses and herbaceous plants in fields and along roadsides. Some gardeners have been known to provide a meadow or "weed patch" for these patrons.

evergreens

Evergreen trees and shrubs provide valuable shelter for roosting during those cold, winter nights. During the day owls will often rest in them. Many birds also use evergreens as nesting sites before the deciduous leaves appear in early spring. Good plants for these purposes include the pines, spruces, hemlocks, cedars and yews. Most of their seeds are eaten during the fall. The red cedar *(Juniperus americana)* does the best job of producing winter food. Its pale-blue, berry-like cones are consumed by 28 kinds of birds. Unfortunately, the red cedar is sometimes a host for rusts, which can be transmitted to hawthorns, mountain ashes, apples and quinces.

As natural areas disappear in the wake of massive suburbs it is vitally important that we provide for wild birds in our own backyards. By doing so, we will not only help the birds to survive, but also make our properties more beautiful and interesting places to live in winter and throughout the year.

●

Marvin Clymer graduated from Penn State in 1974 with a B.S. in Recreation and Parks. He spent 8 years as staff naturalist with Pennypack Watershed Association, a conservation group in Huntingdon Valley. In 1983, Clymer left the Association to pursue a free lance career as a speaker, naturalist and photographer. Since that time, a wide variety of groups have enjoyed his entertaining and informative EarthStar Programs.

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Read More About Winter Gardening

Mary Lou Wolfe, horticultural librarian for the Pennsylvania Horticultural Society, invites readers to borrow any of the following books:

Winter Protection

Gardening Week by Week. Xenia Field. Crescent Books, NY, 1971.

The Rockwell's Complete Guide to Successful Gardening. F. F. Rockwell & Esther C. Grayson. Garden City, NY, 1965.

Successful Cold-Climate Gardening. Lewis Hill. Stephen Greene Press, Brattleboro, VT, 1981.

Weather-Wise Gardening. Ortho Books, Chevron Chemical Co., San Francisco, 1974.

Design for Winter Gardens

Color in Your Winter Yard and Garden. Helen Van Pelt Wilson. Scribners, NY, 1978.

Gardens in Winter. Elizabeth Lawrence. Harper, NY, 1961.

My Garden in Autumn and Winter. Edward A. Bowles. Devon, David & Charles reprints, 1972 (1915).

Trees in a Winter Landscape. Alice Upham Smith. Holt, Rinehart & Winston, NY, 1969.

Winter Gardens. Oliver E. Allen. Alexandria, VA, Time-Life 1979.

Vegetables

The Country Journal Book of Vegetable Gardening. Nancy Bubel. Country Journal, Brattleboro, VT, 1983.

Gardening for All Seasons. New Alchemy Inst., Andover, MA, 1983.

Birds

Attracting Birds to Your Garden. The editors of *Sunset* magazine. Lane Books, Menlo Park, CA, 1974.

The New Handbook of Attracting Birds. Thomas P. McElroy. Knopf, NY, 1960.

Trees, Shrubs and Vines for Attracting Birds: a Manual for the Northeast. Richard M. DeGraaf and Gretchin M. Whitman. U. of MA, Amherst, MA, 1979.

Greenhouses

The Greenhouse Environment. John W. Mastalerz. Wiley & Sons, NY, 1977.

Greenhouse Grow How. John H. Pierce. Plants Alive Books, Seattle, Washington, 1977.

Growing Under Glass. Kenneth A. Beckett. Simon & Schuster, NY, 1981.

How to Build and Operate Your Greenhouse. Charles Ellwood. HP Books, Tucson, AZ, 1977.

How to Build and Use Greenhouses. Ortho Books, Chevron Chemical Co., San Francisco, 1978.

The Solar Greenhouse Book. James C. McCullagh. Rodale Press, Emmaus, PA, 1978.

Visiting Public Gardens in Winter

Great Public Gardens of the Eastern United States. Doris M. Stone. Pantheon Books, NY, 1982.

New England Gardens Open to the Public. Royce Redard Payne. David R. Godine, Boston, 1979.

One-Day Trips to Beauty and Bounty. Jane Ockershausen Smith. EPM Publications, McLean, VA, 1983.

Public Gardens and Arboretums of the United States. Martha McMillan Roberts. Holt, Rinehart & Winston, NY, 1962.

Flowering House Plants

Crockett's Indoor Garden. James Underwood Crockett. Little, Brown, Boston, 1978.

Flowering House Plants. James Underwood Crockett. Time-Life, NY, 1971.

Garden in Your House. Ernesta Drinker Ballard Rev. ed., Harper, NY, 1971.

Orchids as House Plants. Rebecca Tyson Northern. Van Nostrand, NY, 1955.

Plants that Really Bloom Indoors. George Elbert. Simon and Schuster, NY, 1974.

Rodale's Encyclopedia of Indoor Gardening. Anne M. Halpin, ed. Rodale, Emmaus, PA, 1980.

Winter Grasses

Grasses: an Identification Guide. Lauren Brown. Houghton Mifflin, Boston, 1979.

Growing and Decorating with Grasses. Peter H. Loewer. Walker & Co., NY, 1977.

Ornamental Grasses. Roger Grounds. Van Nostrand Reinhold, NY, 1981.

Ornamental Grasses. Mary Hockenberry Meyer. Scribner's, NY, 1975.

The PHS Library has a brisk mail service. To order a book send your request by mail or phone 625-8256. If you don't know exactly which book you want, we'll be glad to suggest some in your subject area. Books are loaned for four weeks, mailing and handling charges are $1.00 per book and are paid when you mail the book back.

Letters to the Editor

More Herb Gardens to Visit

In the July issue of *Green Scene* (All About Herbs) Joanna Reed wrote about Herb Gardens to visit. She noted that space would not permit her to list all of the wonderful gardens we could visit and invited readers to let us know some the best we missed. Here are some additional invitations:

Dear Editor:

We have a large display herb garden and a perennial flower garden with herbs mixed in. We are beginning a Christmas Herb Garden this fall. I also have a kitchen herb garden by the house and next to our vegetable garden. We have a small rose garden and all of the beds around our house incorporate herbs in them. Our collection of herbs numbers well over 200 including some unusual herbs, many varieties of lavenders and pelargoniums. We invite you and all PHS members to visit our gardens. We are very proud of them.

Next year we plan to put in more display gardens showing people different ideas for growing herbs. We do some elegant patio planter herb gardens also.

Barbara K. Brouse
Jane Brouse-Detwiler
The Dilly Duo Herbs
2015 Potshop Road
Norristown, PA 19403

Dear Editor:

There is a small, but interesting herb garden, that is part of the restored Hopewell Village.

Hopewell Village National Park is in Northern Chester County. If you take 345 to Warwick Village and follow the signs, it is easy to find. It is adjacent to French Creek State Park.

Park headquarters will give you a map identifying the plants, if you ask there.

Thank you for such a splendid magazine. It is always a pleasure to read and an invaluable source of information for amateur gardeners like myself.

Martha C. Moscrip
Secretary, Elverson Garden Club
Elverson, PA



Slugs

Dear Editor:

After 20 years of gardening in the Delaware Valley, I am just completing the most discouraging year of what has heretofore been a pleasurable experience. This summer began with a serious drought and nice warm weather which led me to mulch almost everything as soon as possible: vegetables, flowers and shrubs. By June, I had a serious problem with slugs. After spending about $40 on "Slugeta," slug damage continued at the same alarming pace: 32 marigolds were totally consumed. Slugs climbed 3-4 feet up lily stems to tunnel through the exact center of about-to-bloom buds. I hand picked in the evening as many as I could before dark. I won't survive another Slug War.

In July whitefly appeared on tomatoes, cucumbers, eggplants and zucchini. All home and commercial remedies failed to even dent the clouds of this annoying destructive pest. Vegetables were produced, but I'm sure the harvest was not as bountiful as it should have been.

Now that it's fall I am taking all kinds of precautions. First, I removed all affected vegetable foliage and carried it far away. I waited a week and then began to sterilize every plant coming back into the house and into my pit greenhouse. An isolation contagious ward has been established where known carriers of white fly such as fuchsia now reside.

I will try anything and everything knowledgeable *Green Scene* readers can suggest to defeat these two impervious pests.

Toni Brinton

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Cedar waxwing on American holly. See page 30.

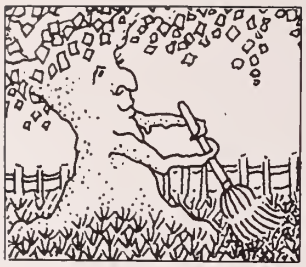


Winter morning on Barren Hill. See page 20.

THE green scene

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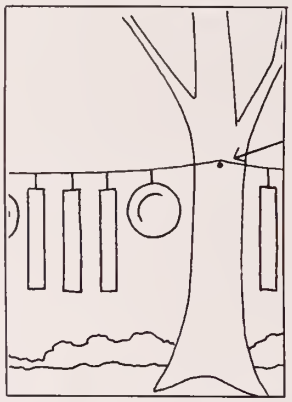
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photo by Mary Lou Wolfe

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Before pruning or discarding woodland trees and shrubs, learn to recognize winter buds and bark. For example, *Ilex verticillata* does not fruit in heavy shade, or when young. It would be a pity to inadvertently eliminate such a beauty.

photo by Joanna McQ. Reed

Working with nature makes winter fly

by Joanna McQ. Reed

People are surprised when I claim winter as a favorite time in the garden. They assume I should be happy to lay gardening chores to rest for a few months. Indeed it is pleasant to change focus during December, make presents and ready the house for Christmas and the holidays.

The first week in January finds me anxious to be outdoors. This is my time to work in the woods. Being a country gardener I have a sizable woods. Everyone is not so fortunate or burdened according to one's viewpoint.

As a young child I played in a natural woods on a West Virginia hillside. Rhododendrons were the roofs and walls of make-believe houses; my dolls feasted on hemlock cones, honey locust pods and oxydendrum seeds. Red bud and dogwood petals were strewn at Lilliputian weddings. This play was probably a further expression of my innate love of the woods.

continued

It was not, however, until my classmates and I at Barnes Arboretum followed Laura Barnes each week along the paths she had created in the wooded section of those splendid grounds did I passionately covet such an enchanting spot for my very own. Blatantly brilliant leaf color was followed by lacy and strong silhouettes against late fall skies; while snow and ice cystals enhanced twigs and branches, winter blossoms surprised us with their fragrance; bulbs, one species after another, carpeted the ground with color during the spring months followed by fern fiddles forecasting the quieter greens of summer. Beauty abounded in each season.

As remarkable as were Laura Barnes's gardens was her ability to inspire her students to create their own gardens, instilling in all the belief that dreams could indeed become reality in time, with dedication and hard work.

Now an abundunt supply of trash food and fruits of the vines delight today's birds. Eventually each seed eaten, whether poison ivy, bittersweet or grape, will drop as pelleted seed multiplying the problem. Nature needs our help!

The canvas for my dream was an acre or slightly more of young swamp maples, the progeny of a few ancient line trees (former hedgerow trees left to shade the cows who came to cool their feet in the swamp ground). This ground was liberally covered with rock cleared over the years from the fields by those who plowed the land, and dumped here on their most unproductive spot. One oak, and one shagbark hickory stood tall and magnificent among the scruffy maples.

Quickly it was evident, we could not transform the area overnight. The soil between the rocks and stones was thin or nonexistent, in its place a heavy thatch of surface roots. Each bulb planted was a triumph and a frustration. The first primroses, Jacob's ladder and columbine were washed away by sudden summer storms, never having the opportunity to multiply. Worst of all, after each attack, on what I now considered a hostile woods to be conquered at all cost, I was reduced to a grotesque swollen lump of itching humanity: poison ivy, of course.

A wonderful neighbor, a farmer named Cuffie, offered counsel and encouragement; he was a man in tune with the earth, a kind and patient teacher, his advice reliably practical. "Headway is made when you don't hurry"; "back into your work, always look at what is finished"; "thinking about a job is the hardest part."

clearing poison ivy

Since I am regularly asked two questions: "Don't you have poison ivy"? and "How do you maintain your woods"? which are now civilized, I share some of Cuffie's advice and the practices that have yielded the best results.

First the ubiquitous poison ivy,, an arch foe to almost all. If the area is large, spraying is apt to be futile unless you are an expert or professional. It grows to great heights, the trunks of the vines are woody when large, the roots become interwoven with those of desirable plants. To reach and kill all of the enemy with spray one would annihilate the entire area. Just observe the brown swaths local highway departments create each summer by spraying. Actually the sprays are not as effective at killing vegetation as the salt applied during the winter.

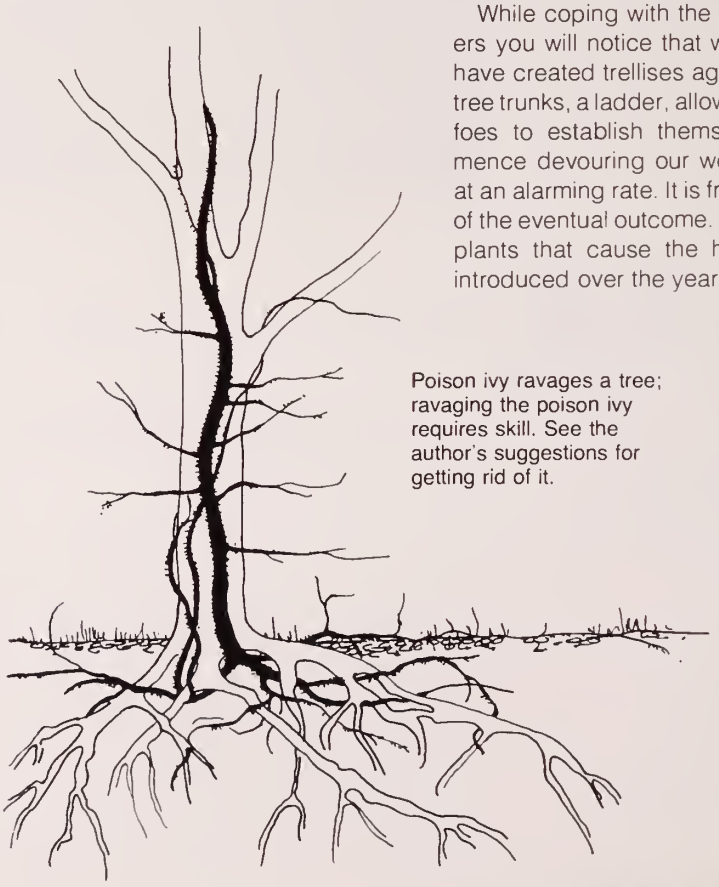
Where the poison ivy is growing up into trees cut back all accessible branches. They are easy to recognize projecting at right angles from their main stem and the host tree. Hold the cut branch in the clipper, carry to and drop into a large sturdy drop cloth (an old plastic shower curtain is my favorite). Never try to deal with long whipping pieces; they will get you every time. Cut it up as you go into two or three foot lengths. Now it is safe to cut a section from the vine's main trunk with hatchet or saw. The upper portion will die back; eventually the wind will shake it down. The new growth that will sprout from the base of the trunk can be touched with a systemic weed killer, although I never use one.

Where the poison ivy grows along the ground, pull it up, again cutting into short lengths. Late fall, winter thaws and early spring are the best times. The earth is loose and there is no foliage to contend with. Learn to recognize its every aspect – trunks, stems, fruits and roots as well as the compound leaves – all are equally toxic. Believing I had gathered bayberry, I entwined poison ivy fruit and red cedar branches into Christmas wreaths during my first winter in the country.

Back to the drop cloth. Flip the dangerous contents onto a pile to be burned later on a wet or snowy day, remembering to stay in the lee of the fire and smoke. Better to make repeated trips than contend with an overloaded, spilling bundle, ready to attack the innocent and unaware.

Honeysuckle, grape, catbrier and bittersweet, other pesty vines and climbers will usually be interlaced with our old friend, the poison ivy. I deal with all as if equally lethal.

While coping with the vines and creepers you will notice that windfall branches have created trellises against many of the tree trunks, a ladder, allowing our creeping foes to establish themselves and commence devouring our woods and forests at an alarming rate. It is frightening to think of the eventual outcome. It is not our native plants that cause the havoc, but those introduced over the years as ornamentals



Poison ivy ravages a tree; ravaging the poison ivy requires skill. See the author's suggestions for getting rid of it.



photo by Joanna McQ Reed

Plot your paths towards points of interest, follow the contours of the land.

or crops. When the land was intensively farmed, hedgerows were kept clear by the farmer; birds ate a small percentage of his grains. Now an abundant supply of trash food, fruits of the vines mentioned, delight today's birds. Eventually each seed eaten, whether poison ivy, bittersweet or grape, will drop as pelleted seed multiplying the problem. Nature needs our help!

Back to your woods and mine. At first I collected the offending fallen sticks and branches into burn piles. Later I developed a quicker, more productive system, breaking all sticks into pieces, large or small, and letting them fall to the ground. When in direct contact with the earth the pieces soon rot. They and the fallen leaves are your source of humus and soil. This welcome activity changes the continaully dropping branches from an eyesore to a rich gift. Done regularly the woods are quickly cleared.

The larger branches and small tree trunks, three inches in diameter, or larger, I use to outline my paths, having stripped each one of its side branches. The in-between size (or those too green to snap and break easily) I pile along the path edges to rot or serve as an every ready supply of fireplace kindling. These larger pieces can also be lain across low-lying paths, in the fashion of early corduroy roads, building them into higher, drier walkways. One caution: if the area is consistently wet be careful not to create dams. Become aware of where the water runs after showers and make allowances for its flow.



photo by Sherry Wheat

Highlight special spots – a sweep of mixed ferns.

the landscape's character

With the vines and windfalls now gone, your uninteresting land (if it was like mine) will suddenly assume character, a high spot here, a slight gully there, a large rock or boulder waiting to be a backdrop for a treasured plant. Now as you look out from under the trees toward stronger light in the open, you will be aware of individual silhouettes against the ever-changing skies. When you look back into the woods there will be patches of light filtering down through the newly cleared spaces. If your land is high you will have found clumps of Christmas fern, pipsissewa and partridge berry providing color and ground interest during the winter months. If low like mine you will have to content yourself with hummocks of soft green moss.

When you study the area the latent beauty of your chosen spot is evident; you know that the insurmountable tangle of the landscape can indeed be conquered, more readily than you had dared hope. To enjoy the necessary work, dress properly, long sleeves and gloves against poison ivy, heavy socks and waterproof boots against the cold and wet. While breaking up sticks or pulling at vines take time to look around. Get acquainted with your land and the shapes of individual shrubs and trees. Decide which need pruning, which need removal. Key out unfamiliar barks and buds; you don't want to destroy a

continued



photo by Joanna McQ. Reed

Ligularia przewalskii, which follows *Digitalis purpur*ea and earlier bulbs.

potentially interesting specimen. Learn to recognize the young tulip poplars, hickory, beech and oak that will succeed the earlier ash, maple and cherry. Thin your trees, so those that remain can develop well-branched heads. Your county agent has excellent information about managing a woodland area; the Bureau of Forests can offer practical assistance (R.D. #2, Pottstown, PA 19464, phone 469-6217). I wish we had gotten that kind of help years ago. Instead nature with its wind, water and seasonal storms has shaped or eliminated our excess trees. The problem being that good material is often lost when a weak or dead tree thus falls.

I have observed that prime trees, lost in a wind storm, have usually been overburdened with extra foliage from vines. This extra foliage not only smothers and weakens the tree, but additional foliage surface holds snow and ice whose weight breaks down branches and even snaps main trunks. In high winds, at any time of the year, the tree is hindered from freely swaying with wind, often being snapped off or uprooted as a result.

Plot your paths towards points of interest, follow natural contours and create island areas, easier to subsequently plant and develop. Your paths' edges provide locations for ground cover and small delights. Thin the understory of catbrier, excess spicebush, etc. Learn to recognize winter buds, barks and growth habits of native azaleas, shadblows, deciduous hollies, high-bush blueberries and many more. If the woods are fairly open, briars of all kinds, blackberries, raspberry and wineberry, unfruitful in heavy shade, will be present and are best eradicated.

At first many of these plants will appear similar in winter, but in short order you will recognize friend and foe. Tiny seedlings readily grow into handsome specimens if recognized and encouraged. I mark such discoveries with a triangular square of medium sticks laid on the ground around the individual plant or patch needing protection. It alerts me on future work days. Never in your enthusiasm eliminate all but choice desirable material. This would leave your local wildlife no aternative to eating your treasures.

spring will come sooner

Spring will arrive sooner than any spring in the past, after spending such a winter. It will arrive long before you have accomplished all that you had planned. You will be more aware of the daily changes, newly emerging plants and the wondrous fresh smell of warming earth. Be prepared to relocate some of your carefully potted plants when you discover they would ruin an entire patch of fern or wild flower. If the patch is far flung let the path bisect it for a true effect of abundance.

The extra light you have caused to come shafting though the trees will encourage long-dormant wild flowers to reappear. Wherever and whenever this happens I have found that weeding out unwanted nothings, during summer months, and using them for mulch around the favored plants encourages them to increase in number and vigor. Extra clearing of brush can highlight special spots and open up new vistas.

Each year the remaining trees and shrubs can be pruned and refined to better and healthier specimens. Young ones can be coaxed into desirable shapes. Be prepared to occasionally lose prize or long-coddled favorites to heavy falling branches or dead tree trunks. Don't despair; the crushed plants if cut back will sprout again, perhaps more multiple stemmed, or other plants will replace them. Also be prepared to make the painful decision to remove a cherished plant, in sacrifice to an improved overall design. When even desirable shrubs become congested into a thicket, the beauty of individual form and line are soon lost. I catch myself continually shaping a young viburnum or witch hazel into a pleasing shape only to realize sadly that it is superfluous. Once again I had been lost in detail instead of considering the grand scheme.

Broad leaf evergreens transform a natural deciduous woods into a garden. Each year I layer branches of leucothoe and rhododendron to be moved in a later year to a more remote spot. Ten rooted cuttings of leucothoe from the now defunct Allenwold Nurseries and a dozen small *Rhododendron maximum* have been parlayed into mass plantings. When the layering is done regularly a supply will be at hand. I move the plants into permanent positions while still small, when they are much easier to plant in our non-soil rock field. It should also be easier for them to adapt to such a habitat. The number of plants moved each year is limited to how many could be watered adequately in a drought year, since we can't forecast such occurrences. These young transplants are mulched each fall and winter with oak leaves collected along local roadsides.

Of late I have been broadcasting American holly seeds throughout my woods, especially where a screen is needed along the turnpike that bisects my land. Having observed that such young trees often spring up at the base of larger deciduous trees (as if for protection), I imitate nature. A number have sprouted. They are small, very small, discernable only in winter, but they will grow.

One delight after another awaits all who adopt a piece of woods, large or small, country or suburban, man-made or natural, scruffy or full grown. I confidently guarantee your winters will be shorter and your springs will be deliriously exciting as well as softly enchanting.

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Joanna McQuail Reed was awarded the 1985 PHS Distinguished Achievement Medal. Joanna's garden was one of 30 selected for inclusion in the *American Woman's Garden,* Ellen Samuels and Rosemary Verey, Little Brown & Co., Boston, 1984. Joanna's essay in that book expresses her passionate and practical approach to gardening developed over several decades.

High Rise Garden Room

by Ed Lindemann



photos by John Gouker

The garden room on the 26th floor is the perfect place for Victor Lang, Jr. to start his day, checking on the progress of newly planted seeds. Grooming a favorite gloxinia or repotting euphorbia are soothing chores after a long day at the office.

"I want to build a garden room in my apartment, a place where I can have some fun with plants," said the voice on the other end of the telephone. I arranged to meet the caller, Victor J. Lang, Jr., so I could take a firsthand look at the project.

Lang's spacious 26th floor apartment affords a panoramic view of the city skyline, the Penn's Landing area and New Jersey beyond. The plants displayed in the apartment and on the small balcony clearly showed that Victor Lang just loved gardening. As we talked, Lang explained his plans for remodeling: a new kitchen and larger dining area, and a special room devoted just to gardening.

Our discussion revealed three main requirements. The space was to provide a growing area to enjoy, to surprise friends when entertaining and to do a little horticultural experimenting. The plan included acquiring the adjoining studio apartment. Walls were knocked out and Lang's kitchen and dining room were expanded. The studio apartment kitchen was gutted and would become the "Potting Shed." An additional small room was to become the "basement." "Every highrise apartment needs a basement for storage," Lang proclaimed on our tour.

The tiny ex-kitchen measured only 9 ft. by 6 ft. Not much room to fit a work area, a collection of plants and the gardener. The design concept was simple: the area had to be functional and attractive. The advantages included the old sink with base cabinet and some existing overhead cabinets for storage. The disadvantages included the lack of air movement, limited space and few electrical outlets. I knew that the minimum size light units that I wanted to use would be four foot, 40 watt fixtures with two tubes in each. The shelves and the lights would be adjustable. I wanted the room to be bright and high-tec in style, yet still inviting. To be successful horticulturally, we would have to keep the air moving and add humidity. An electrician could solve the outlet problem. My rough sketches were turned over to a fine cabinetmaker who was coordinating all of the alterations in the rest of the apartment expansion. A shiny black floor, white walls, ceiling and cabinets combined with natural oak trim set the style for the room. Adjustable shelves act as valances for the light fixtures attached underneath, allowing a variety of positions for both lights and shelves. To save space vertical fixtures were installed for tall plants. A small ceiling

continued



The once small kitchen, now a garden room, is a complete surprise to guests as they walk through the formal dining room. A sliding door shuts the garden from view if maintenance hasn't been properly attended to before a dinner party. The ceiling paddle fan quietly moves the air enough to prevent a heat build-up in the poorly ventilated room. The constantly moving air also helps keep down disease and insect problems.



The shelves act as valances for the light fixtures attached underneath. Oak strips attached to the side walls give architectural interest as well as support and permit easy adjustment of the shelves and lights.

fan circulates the air and an ultrasonic humidifier quietly adds the needed humidity. Individual saucers are used under each plant rather than the standard pebble tray thereby avoiding the necessary periodic cleaning of the pebbles. The sink and countertop provide an adequate work space. Pots, soil mixes and chemicals are stored in the cabinets out of sight. The tools used most often are conveniently mounted on the walls. There is a clock, telephone, radio and even art on the wall, and most important there is room for Victor Lang to work on his hobby after a day at the office. Visitors are surprised to find this garden so high in the sky. The potting shed with its cosmopolitan flair is fun to garden in and to visit, and it earns its keep by producing flowering and foliage plants for the rest of the apartment, and herbs for the kitchen. How many center city guests arrive for a dinner party on the 26th floor to have their host greet them at the door in apron and garden gloves, shears in hand, and present them with a freshly cut hibiscus from the highrise potting shed.

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PHS horticulturist Ed Lindemann designs the Philadelphia Flower Show and is a frequent contributor to *Green Scene*.



A place for everything and everything in its place is the key to space management in this small room. No corner is wasted; frequently used tools are mounted on the wall. The ultrasonic humidifier sits on a shelf built to its dimensions and located near the sink for easy filling and maintenance. The existing kitchen cabinets were kept as storage bins.



Corner areas that could not accommodate horizontal fixtures are fitted with vertical fixtures forming light closets. The tubes are mounted approximately 18 in. off the floor so that all of the available light is concentrated on the plant. The closet's roll-up shade can be pulled down to reflect the light on all four sides of the plant, helpful in forcing flowering plants quickly into bloom for a special occasion.



A WINTER GARDEN OF GRASSES

by Peter Loewer

Part of our garden, here along the New York/Pennsylvania border, sits upon a ledge of rock with about six inches of top soil. The rock runs down two miles towards the Delaware River, falls 800 feet, then rises again to merge with the strata that forms the Pocono Mountains. Starting about the end of July, gardeners in this region begin to feel the first hints of the coming cold air of winter: early in the evening the chill slowly flows down from any mountain top to settle eventually at the bottom of the hill.

If you live all year round in such a climate, it's not too long before the thought of the garden in winter rises to the top of your gardener's consciousness. And soon comes the knowledge that such a climate will not support Christmas roses *(Helleborus niger)* blooming in January, winter-flowering camellias *(Camellia japonica)*, or clumps of winter daphne *(Daphne odora)* scenting the frigid January air.

In addition to the problem of a Zone 4 climate (-30°F. to -20°F), we never get a guaranteed snowfall: in one out of five years, the accumulations total less than one inch, just endless coverings of sleet and downpours of rain. What the wandering and hungry deer do not polish off, winter burn from the harsh and drying winds does.

Luckily there are plants for all seasons: the ornamental grasses. These plants are unlike those used for lawns or cattle fodder, spreading roots in all directions, instead, they grow in self-contained clumps. Their leaves and some flowering spikes persist well into winter and often until early spring – unless literally beat into the ground by a blizzard.

In winter the colors of these grasses are never blatant or bold. Tone here is mellow: shades of brown or buff mingle with warm, burnished yellow ochers highlighted with the worn silver white of the seed plumes that wave above, welcome and beautiful against the snows, glowing when held within a sheath of ice.

The eulalia grasses *(Miscanthus* spp.*)* have an average growth rate of over seven feet in one summer season and usually show their plumes as fall approaches. When the days grow shorter and colder, growth stops. Then with the first killing frost the leaves turn a rich golden yellow or light brown.

The dying leaf blades are on sturdy stems: maiden grass *(M. sinensis* 'Gracillimus'*)* arches in a graceful manner; striped eulalia *(M. sinensis* 'Variegatus'*)* and zebra *(M. sinensis* 'Zebrinus'*)* are straighter in silhouette and stand like sentinels against the winter skyline. Even after the seed plumes begin to shatter, there is still enough structure to hold visual interest.

The clumps slowly increase in size over the years and usually look their best at the back of a border or in specimen plantings in an open lawn. Old stems are cut back in the early spring so there is room for the new growth. If it looks like the grass is becoming too large in scale for the area, I break up the clump with an ax giving surplus sections to other gardeners.

Fountain grass *(Pennisetum alopecuroides)* and purple moor grass *(Molinia caerulea* 'Variegata'*)* both resemble the lilting waters of a garden sprinkler, the first being of a browner shade, the other truly golden. They are best planted in groups and are striking when the leaves are covered with a light sprinkling of snow. They too, grow slowly and should not be divided until completely out-of-hand.

Feather reed grass *(Calamagrostis acutiflora stricta)* has thinner leaf blades than the other grasses. They stand straight into the air rather than curving and when broken by the wind or rain, come to rest in odd angles against the remaining clump. Then the falling snows settle along their length creating sculptural shapes fit for a Madison Avenue Gallery.

We have a rather steep bank that rises

continued



Looking down on a clump of fountain grass *(Pennisetum alopecuroides)*.

◀ The dried leaves of zebra grass *(Miscanthus sacchariflorus* 'Zebrinus.')

photos by Peter Loewer

A line of little bluestem *(Schizachyrium scoparium)* glows in the midst of a snowstorm.



Little bluestem at left and fountain grass on the right used in the perennial border.

up behind our garden. Its soil is poor, with a large supply of small rocks and red shale. We've tried many things over the years to give it the flavor of belonging to civilization. Finally we planted staggered rows of little bluestem grass *(Schizachyrium scoparium)*. It also grows in a fountain like fashion, though smaller in scale, and in late summer, the small, white, seed plumes rise on reddish stems. Most of the year it's just there, but when the winter winds blow, the leaves become a rich reddish-brown and literally glow when seen against a drift of falling snow.

At the base of the bank the lichens and mosses grow, for winter has no effect on them, and curling about the greys, greens, and browns is a colony of poverty grass *(Danthonia spicata)*. In summer it is nondescript but by November, the leaves curl even tighter than usual, looking more like wood shavings left by a tiny carpenter than any grass. Heavy snows may come and bury these plants but with every thaw their elfin beauty returns.

Back in the perennial border we planted a group of sedums *(Sedum telephium* 'Autumn Joy') in front of a clump of cord grass *(Spartina pectinata* 'Aureo-Marginata'). In winter the sedums turn a rich





Northern sea oats *(Chasmanthium latifolium)* on an early winter morning.

mahogany brown, each bunch of blossoms becoming a glowing pin cushion set off by the curving golden-tan leaves of the grass.

Next to the bird bath sits a clump of northern sea oats *(Chasmanthium latifolium)* that turns golden brown in the winter's sun. It sports oat-like seed heads that by December will each have a frosting of ice. In front sits one Japanese sedge grass *(Carex morrowii expallida)* – truly a sedge, not a grass. Unless the winter is really bad, it will remain evergreen until new leaves arise the next spring. It's only 12 in. tall with gracefully arching stems of a dark, shiny green, edged with creamy white.

Finally a group of three common rushes *(Juncus effusus)* stand guard next to a row of Bar Harbor junipers *(Juniperus horizontalis* 'Bar Harbor'). The rushes are truly primitive and their leaves are really pith-filled stems, round and tapering, each 16 to 20 in. long and curving in all directions from a common center. I dug them up from a cow field nearby and as they become accustomed to a better kind of soil, they grow larger every year. In winter, their color changes from light green to a lustrous brown and they are strong enough to make lace work of falling snow.

Cultural demands are few. Average garden soil will suit the grasses, just place them in a sunny location. Sedges and rushes will do better if given a little shade part of the day and a soil that is slightly damp.

We have many dwarf conifers in the garden; a weeping birch, sedums and such, but every year when winter truly descends from leaden skies, it's the ornamental grasses that bring warmth and beauty until it's time for the following spring.



Grasses for a winter in the garden:

Feather reed grass, *Calamagrostis acutiflora stricta*. 5-6 ft.
Japanese sedge grass, *Carex morrowii expallida*. 6-12 in.
Northern sea oats, *Chasmanthium latifolium*. 4-5 ft.
Poverty grass, *Danthonia spicata*. 3 in.
Common rush, *Juncus effusus*. 2½-3 in.
Eulalia grass, *Miscanthus sacchariflorus*. 10-12 ft.
Maiden grass, *M. sinensis* 'Gracillimus.' 7-8 ft.
Striped eulalia grass, *M. sinensis* 'Variegatus.' 5-6 ft.
Zebra grass, *M. sinesis* 'Zebrinus.' 7-8 ft.
Purple moore grass, *Molinia caerulea 'Variegata.' 2-3 ft.*
Fountain grass, Pennisetum alopecuroides. 3-4 ft.
Little bluestem, *Schizachyrium scoparium*. 3-4 ft.
Cord grass, *Spartina pectinata* 'Aureo-Marginata.' 5-6 ft.

Sources of Supply for Ornamental Grasses

Kurt Bluemel, Inc.
2543 Hess Road
Fallston, Maryland 21047
Catalog is 50¢

Garden Place
6780 Heisley Road
P.O. Box 83
Mentor, Ohio 44060
Catalog is 50¢

Andre Viette Farm & Nursery
Rte. 1, Box 16
Fishersville, Virginia 22939
Catalog is $1.00

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Peter Loewer is a frequent contributor to *Green Scene*. He is the author of several books and is currently working on a book about garden design for Rodale Press, scheduled for release in fall of 1986.

The Bulb Frame

by Lee M. Raden

It may seem strange to people gardening in the Delaware Valley that anyone would take the time and trouble to make a special, large container in which to grow bulbs. The reason is that some of us want what we think we can't have, that is, to grow successfully in our climate plants that are deemed impossible to grow here. I'm talking about those rare and difficult bulbs that are hauntingly beautiful, that are all too sparse with their bloom or that bloom between mid-January and mid-March when we seem to have nothing but wind, ice and sleet, and need some form of protection from the elements.

The primary purpose of the bulb frame is to keep the bulbs *almost* dry from May 15th through the first of September. We must keep them damp but not wet while in active growth and bloom, and then adjust the moisture while they are ripening on and into dormancy. If you are willing to make these conditions available to the plants, I can assure you the rewards for many years will far outweigh the relatively small initial expense to build a bulb frame.

The bulb frame should be a raised bed, *minimum* height 18 in.; depending on your back, age or other circumstances, it can be as high as you wish. It should have some sort of adjustable covering that will let you water when needed and keep the rains, wind, snow and sleet out when they are not needed. My bulb frame is made out of timbers and it is approximately 10 ft. long and 3 ft. wide. The bottom of the frame is covered with turkey wire. The wire keeps out moles, voles, and mice. Over this, approximately 12 in. of crushed granite stone and then the growing medium of spent mushroom soil *(minimum three years old)*, mixed with an equal amount of *stream sand* (builders sand or perlite will suffice if stream sand is not available). This special mix is necessary because when we water we want fast draining with large surface areas so that we can keep the growing medium damp but not wet. The mix is probably the most important factor in growing the bulbs and keeping them in suspended animation in their dormant period.

Contrary to popular belief, which states that bulbs should be dried out and hot in their dormant period, many bulbs in nature grow in soils rich in clay where the bulb is encapsulated in the clay. During dry spells the clay keeps the bulb from desiccating because it is wrapped in a cocoon of just barely damp and cool clay.



photo by Lee M Raden

The panels are closed from October to March. One panel is shown open here; access is for planting and observing.



photo by Lee M Raden

Iris 'Warlsind' section juno. A cross between *Iris warlyensis* and *Iris aucheri*. It's much easier to grow than the oncocyclus iris shown on opposite page. It needs bulb frame treatment. Growth starts mid-September.

In mid-July, when the bulb frame has not been watered since May, the upper 9 in. of growing medium is bone dry and hot. Below this the bulbs are resting in barely moist conditions and approximately 20°F cooler than ambient temperatures. The bulbs are grown in submerged latticed baskets. I use plastic cherry tomato and strawberry containers, which serve this purpose very well. The bulbs should be carefully labeled and if at all possible, similar species kept apart in the frame. This allows chance seedlings to be readily identified and the mother bulbs lifted for inspection or placed in pots for shows, with minimal disturbance to brittle roots.

The actual growing year begins September 1st with a thorough soaking of the frame. In normal years, watering twice in



photo by M E C Raden

Iris iberica ssp. elegantissima section oncocyclus, almost impossible to grow here. This photo shows bud and bloom in the bulb frame early April. It starts active growth September 1st. Stops growth around Christmas and then active growth again around early March. A gem of gems. **This should be covered.**

September, twice in October, and once in November is all that is required. If the frame begins to dry out in either December or January pick a warm clear day and water in the early morning. Starting in January bloom is constant into March. With the advent of March and April two things are happening in the frame – the late blooming bulbs are blooming but the majority of the bulbs have already bloomed and are in active growth. It is critical to water and fertilize. I use Peters Blossom Booster 10-30-20 recommended concentration on all plants in the bulb frame in March and April. It is important in April and May that watering and fertilizing be done early in the day so that the foliage dries thoroughly before nightfall. I have never had botrytis, and I never want to have it, so I rigorously follow the above procedure.

As you have probably noted from the photos, the covering of the bulb frame is nothing more than used storm doors that have been hinged. They are propped open on the south side for viewing the bulbs and allowing more air circulation on lovely early spring days. The ends of the frame are aluminum screening and the unsealed screening is all that is on the ends twelve months of the year. This tells you that temperature is not the important consideration in the bulb frame but that air circulation and moisture to the bulb *when it needs it* is all-important.

Over the last 10 years there's been a tremendous upsurge in growing rarer bulbs in this country. You can be a part of it by building yourself a simple frame that will allow you to control the elements and enjoy these treasures.

Unusual Bulbs to Grow in Your Frame

"Bulbs" in this article mean corms, rhizomes, tubers, bulbs and thickened roots. The following are bulbs I grew successfully in my bulb frame over the last three years.

Anemone pavonina 'Barr Salmon'
Crocus ochroleucus
Crocus biflorus crewei
Crocus goulimyi
Crocus hadriaticus chrysobelonicus
Crocus longiflorus
Crocus niveus
Crocus gargaricus
Galanthus nivalis 'Sam Arnott'
Galanthus aurea
Galanthus nivalis reginae-olgae
Iris 'Katherine Hodgkin'
Iris x *sindpers*
Iris 'Warlsind'
Iris persica
Iris Willmottiana 'Alba'
Iris mellita violacea
Iris iberica elegantissima
Leucojum autumnale pulchellum
Leucojum nicaeense
Leucojum trichophyllum
Narcissus Watieri
Narcissus willkommii
Narcissus cyclamineus
Odontostomum hartwegii
Scilla rosenii
Silene hookeri
Sternbergia lutea
Tulipa pulchella
Tulipa grengiolensis

Books about Unusual Bulbs

The Bulb Book. Martyn Rix & Roger Phillips. Pan Books Ltd., London, 1981.
The Bulbous Bulbs of Turkey. Brian Mathew & Turhan Baytop. B. T. Batsford, Ltd., London, 1984.
Bulbs – The Bulbous Plants of Europe and Their Allies. Christopher Grey-Wilson & Brian Mathew. Wm. Collins & Son, London, 1981.
Growing Bulbs. Martyn Rix. Timber Press, 1983.
Handbook (catalog). P. J. & J. W. Christian. North Wales, U.K.

All books except the *Handbook* are available from the Pennsylvania Horticultural Society Library

Sources

Avon Bulbs
Bradford-on-Avon
Wiltshire BA152AT

John D. Lyons, Inc.
143 Alewife Brook Parkway
Cambridge, MA 02140

P. J. & J. W. Christian
Pentre Cottages, Minera
Wreyham Clwd, N. Wales
United Kingdom

Potterton & Martin
Mooretown Road
Nettleton Caister
Lincs LN76HX
England

Broadleigh Gardens
Barr House
Bishops Hull
Taunton, Somerset
England

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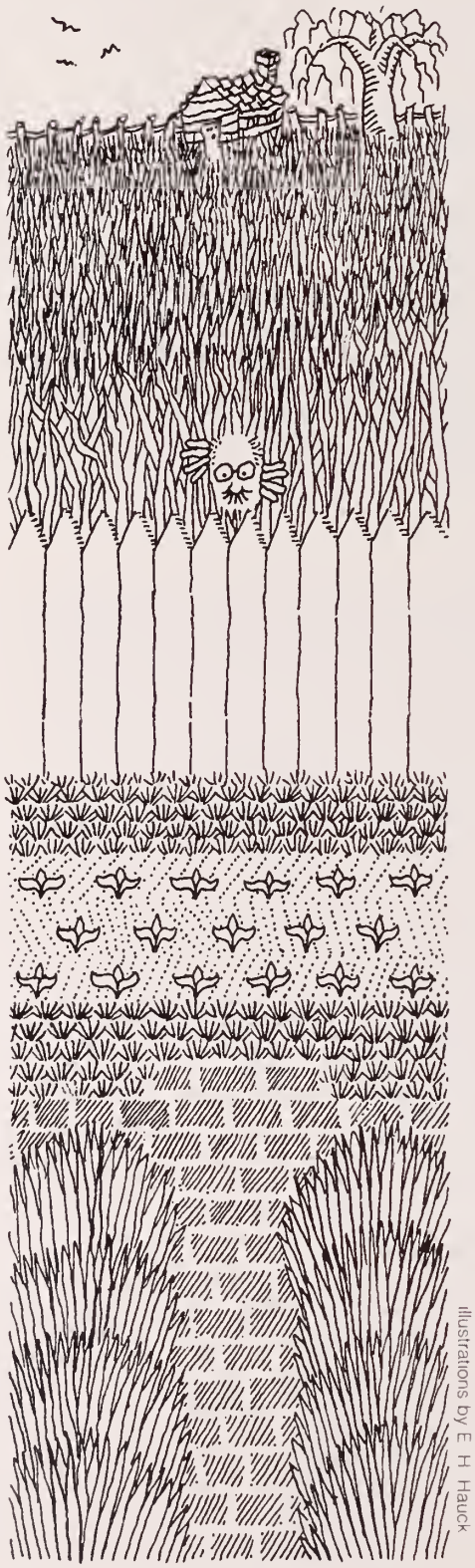
Lee M. Raden is vice president of the American Rock Garden Society as well as a member of the Alpine Society of Great Britain, Scottish Rock Garden Society, American Primrose Society, Japanese Rock Garden Society, Botanical Society of South Africa and the Board of Directors of Swiss Pines Arboretum.

GOOD GARDENING

The Ideal Garden Neighbor looks out on the world from his own handsome grounds. His lawn is free of dandelion and plantain; his dogs do not wander and his cats catch only mice. His roses have no blackspot, his dogwoods are healthy and his Japanese beetle trap is full. Attractive plants screen his private life from the eyes of his neighbors while presenting a stunning display for others 12 months of the year. In his spare time he propagates various uncommon plants, passing any extras over the beautifully maintained fence into the hands of the less fortunate.

The Ideal Garden Neighbor does not live at *my* house. I occasionally wish he lived next door, though I suspect his perfection would be insufferable. Perhaps, then, ordinary standards of neighborly consideration might be more comfortable. What each of us wants next door is the Good Garden Neighbor.

Many years ago I lived next to a woman who, for one summer, kept an orangutan and something she called an African porcupine in her backyard. She also had a cheetah, but it only went out to accompany its owner to parties.



Illustrations by E. H. Hauck

fences

The old saying that good fences make good neighbors is as true for gardeners as it is for anyone else. A thoughtfully chosen barrier, whether fence or hedge, provides a measure of privacy and security on both sides. The gardener who complains loud and long about nosy people and intruding dogs should save the energy that goes into complaint and use it to build a fence. People everywhere are interested and curious, and in every neighborhood there are at least a few dogs that wander unrestrained. I have learned that it is almost pointless to try to retrain the owners of these animals, and that a fence is the best defense.

A neighborly agreement about the composition of a barrier between properties might be in order, though it probably works better if one neighbor assumes the major responsibility for construction and maintenance. Many hedging materials will present no problem, but some plantings do at least merit discussion. The gardener determined to maintain privacy with a thorny hedge, perhaps of some species of *Berberis*, may find himself in conflict with a family worried about children being injured by the thorns. The Good Neighbor does not say, "Well, that's the point." He diplomatically explains that children are intelligent and quickly learn to avoid unpleasant sensations.

It is also well to remember that hedges have to be clipped on both sides. The gardener who wants a lightly pruned cascading hedge should be certain that his neighbor understands there will be no sheared green wall. The composition of the hedge may not be open to negotiation, but explanation cannot hurt. The same might also be said for fences and walls. It would be hard to imagine anyone being disturbed by an attractive masonry wall or wooden fence, so long as the height is not extreme, usually a matter of local ordinance, rather than neighborly cooperation. Even the chain-link fence may be masked by shrubs or vines, where its effectiveness as a barrier makes it an inescapable choice.

A good fence will keep out visiting dogs and all but the most willful children. It is, however, ineffective protection from the neighbor's prowling cat, raccoons and squirrels. I have mixed feelings about roving felines. I am always distressed to find the corpse of an unlucky song bird, and the rarer the bird the greater is my distress. On the other hand, the remains of a mouse or one of its larger brethren tells me that some resident tiger has been a very good neighbor indeed.

peripheralism

Assuming a property has been adequately enclosed, the Good Garden Neighbor should be wary lest he fall victim to the condition I have always thought of as "Peripheralism." This affliction leads property owners to place every tree or large shrub at the boundaries of their gardens to create privacy. It is an unnecessary measure and in some cases shows lack of consideration. A visual barrier placed anywhere between the area to be screened and the eyes of the outside world will accomplish the desired effect, and place-

NEIGHBORS

by Tam Hartell

ment well within the property lines can prevent friction between neighbors.

One of the unkindest acts a gardener can perform is to plant invasive or messy trees and shrubs where they extend over a neighbor's property. I once lived in a house with a large mulberry tree in the backyard. Every summer I monitored the progress of a father cardinal who brought his young, one at a time, to feed there. Because the fruit of the mulberry attracts so many birds, I have an affection for the tree. I certainly do not miss, however, the clods of crushed berries we all tracked into the house during the fruiting season, and I would deeply resent any neighbor whose mulberry hung over my fence. The pods of *Sophora japonica* can present a similar problem and some crabapples drop quantities of small slippery fruits. Some may feel the same about the fallen flowers of *Magnolia* x *soulangiana*, but I love the winey smell of the fermenting petals once they have fallen to the ground, and feel it would be churlish to object to a little slipperiness underfoot in this case. Even though it is more blessed to give than to receive, some plants simply should not be shared The Good Garden Neighbor will consider carefully the placement of forsythia, bamboo, wisteria and walnut.

maintenance: good garden housekeeping

Once the boundaries between properties have been landscaped to the satisfaction of all, the greatest bone of contention among neighbors will surely be maintenance. Every summer brings at least one report of a person somewhere in America who has decided, to the dismay of those living around him, to have a "natural" yard. In one case, extreme enough to reach the national TV news, the tangle of weeds and shrubs reached the second story of the owner's house. It was truly spectacular. I never find out how these extreme cases are resolved, but in most neighborhoods the persistently unkempt yard is the source of perennial grumbling by some of the residents, and never becomes the focus of a major battle, in or out of court.

If the Good Garden Neighbor wishes to be liked by all, he has only to keep his lawn a green carpet and his hedge a neat box. If he uses a power mower and electric hedge clippers he can be certain that the admiring attention of the entire neighborhood will be drawn to his industry, as well as the physical perfection of his property. I have no personal aversion to a neighbor's unmowed lawn, nor to the weedy meadow. I should prefer, however, not to have to do battle with more honeysuckle, bindweed and nightshade than I encounter in the normal course of events in my own garden. Few things are more frustrating than pruning honeysuckle or poison ivy off the back fence several times a season, when five minutes with a mattock on the other side of the fence would solve the problem more or less permanently.

The Good Garden Neighbor also pays



some attention to garden "housekeeping." Some chores, like raking leaves in the fall, may be a matter of courtesy. Others may be a matter of the health of plants or people nearby. As most of us know, the heat and moisture of the summer of 1984 made it a particularly difficult one for *Cornus florida*. The gardener who has decided to take a *laissez faire* attitude toward his own dogwoods could be unfair to other property owners whose gardens might in turn be affected. In fact, the single complaint I have heard most often this year has been about neighbors whose dogwoods have died but have not been removed. Too often the omission cannot be laid to ignorance, for almost certainly somewhere nearby at least one person will give good advice about the tree even when it is not requested or wanted.

The mess that animals leave behind can be troublesome as well. Many years ago I lived next to a woman who, for one summer, kept an orangutan and something she called an African porcupine in her backyard. She also had a cheetah, but it only went out to accompany its owner to parties. During that sumner it was impossible for people living near her to spend any time in their own yards, so ripe was the aroma that came from next door. Most of us, fortunately, do not have exotic animals living on the other side of the fence, but even in those yards where dogs are permanently confined to limited spaces a certain amount of outdoor housekeeping makes life more pleasant for everyone living in the area, eliminating unpleasant smells and decreasing the attraction for vermin.

When all is said and done, however, the Good Garden Neighbor's greatest attribute is generosity. He may be generous with his plants, with help, with advice (in this respct most of us are generous to a fault), and most of all, he is generous with appreciation. No one is ever offended when his dog, children or garden is praised; often praise for the simplest things is the most richly deserved.

In my neighborhood there used to be a beautiful crape myrtle. Every year I looked for its bloom, and now miss it since its demise in a recent harsh winter. A neighbor across the street has a large Amur honeysuckle in her front yard. This plant is a pernicious weed in these parts, and I ruthlessly pull out any seedlings I find in my own garden. Nevertheless, my neighbor's plant is a sheet of red berries well into the winter, and because she grows it I can enjoy it without having to give up precious space to it myself. When I walk to market I pass a house with a large *Magnolia tripetala* in the front yard, and I frequently walk a block out of my way just to take a look at another neighbor's *Franklinia*. From the more uncommon specimens to the cottage garden around the corner, or the house down the street with a single morning glory climbing next to the front door; from the great sweep of lilies at the foot of a lawn to the pair of geraniums blooming in pots by the front steps, these touches are the gifts of the best garden neighbors, and all the rest of us can share in the bounty.

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Tam Hartell gardens in Germantown. She is an active member of the American Rock Garden Society; her other gardening interests include native plants and growing *Ericaceae* from seed. She has only good neighbors and hopes she is one herself.

CELERIAC:

strong smelling, turnip-rooted, water parsley

by Howard Holden



Celeriac alabaster

The subtitle for this article is a rather loose translation of the Latin name for celeriac, *Apium graveolens rapaceum*. Celeriac is grown for its tuber-like root as its other common name, turnip rooted celery, suggests. The root has a distinctive celery taste that is useful in salads and as a flavoring to enhance a variety of recipes. It is a vegetable for the gardening connoisseur as well as for the gourmet, and though not difficult to grow, it offers a challenge to the vegetable gardener seeking to master more than harvesting the first pea or the biggest tomato. It requires the entire growing season and therefore requires a diligent gardener. The reward is a delicious vegetable that can be harvested well into winter.

The growing process begins in this area about March 1, at which time the seed should be sown in a flat or pot containing a light and sterile growing medium, such as one of the many commercial potting mixes available. The seed is covered with one-eighth of an inch of the mix, watered, and kept at a temperature of 60° to 70° F. (In fact, germination improves if the temperature is permitted to fluctuate occasionally between the two.) The first leaves should appear within 10 to 20 days. As the seedlings grow, give them plenty of light, keep moist, thin occasionally, and feed with one-quarter strength soluble fertilizer every time you water.

Approximately 12 weeks after sowing, the young plants will be of size to set out in the garden. This should coincide with May 15th, our last frost date in the Delaware Valley. It is vital that the plants not be exposed to temperatures lower than 50° for more than a week. Should this occur, the plants will go into the second phase of their biennial cycle and send up an immature flower stalk instead of producing the root.

Set the young plants in the garden about six inches apart. Dipping the roots into a preparation of fish emulsion solution before they are planted seems to lessen the transplant shock and aids in getting the plants off to a healthy start. The addition of liberal amounts of compost to the row before planting will yield better roots come September. Good growth in the garden depends on frequent feeding and constant moisture. There are few vegetables that require as much feeding as celeriac. A monthly side dressing with a complete 5-10-5 fertilizer at the rate of four pounds per hundred square feet is advisable. Allowing the soil to dry out may trigger the plant into shooting up that dreaded seed stalk, and the existing root may become tough. To increase the size of the root, in early July remove all foliage except the youngest in the center of the crown.

After four months in the garden, the roots are ready for harvest. (They will most likely need to be pried loose with a spading fork.) Celeriac harvested in late fall can be stored for winter use by burying the roots in a pit filled with sand and covered with an abundant amount of straw or leaves to retard freezing.

The leaves and fibrous roots are cut from the tuber, and after a good scrubbing, it



photo courtesy W. Atlee Burpee Co.

is ready for the kitchen. It is most commonly used simply shredded and added to salads, soups and stews. Here's the recipe for my favorite celeriac dish:

Grape-Celeriac Salad

½ cup water
2 tsp. lemon juice
½ tsp. salt
1 cup celeriac diced ½ in. cubes
¼ cup french dressing
½ cup pineapple chunks, chilled
1 cup seedless green grapes
¼ cup almond slivers
¼ cup mayonnaise
4 lettuce cups

Mix water, lemon juice, salt into a one quart saucepan and bring to a boil. Add diced celeriac and simmer for 5 minutes. Drain and pour into a shallow dish. Add french dressing to celeriac and refrigerate for three hours or more, stirring occasionally. Before serving, drain celeriac and add pineapple, grapes and mayonnaise. Toss well, spoon into lettuce cups and garnish with almonds.

Jane Pepper and Charlotte Archer heartily recommend boiling equal parts celeriac and potatoes, then proceeding as for mashed potates. In addition, they recommend *The Victory Garden Cookbook*, by Marian Morash, Knoff, 1982, for additional recipes.

Good luck with the growing and bon appetit.

Sources for Celeriac

Joseph Harris Co., Inc.
Moreton Farm
3670 Buffalo Road
Rochester, NY 14624

Stokes Seed Inc.
Box 548
Buffalo, NY 14240

W. Atlee Burpee Co.
300 Park Avenue
Warminster, PA 18991

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Howard Holden is director of grounds at Bryn Mawr College. He is a frequent contributor to *Green Scene*.



THE FURRY GANG OF 13: *interlopers in a developing woodland garden*

by Mary Lou Wolfe

There we are, two females eyeing each other in the early morning light. I look more carefully and see she has a companion, a small brown shadow. My shadow is black, a shiny quivering dachshund name Elsa who shoots through the doorway racing uphill until the doe lowers her head, stares intently and takes a step toward Elsa. Not missing a bark, though bark rises to yip, Elsa turns, races downhill and plops at my side to complain about the neighbors. I grump about them too. I know what those deer are having for breakfast. Cardinal flower and hosta, and I've yet to get a decent photo of them doing it.

When we moved to Barren Hill eight years ago, the occasional sight of deer crossing our lawn at dawn or dusk, munching our puny apples, blending into the woods above us was definitely a thrill. Real country and only two miles from Philadelphia's city limits! Watching birds on our new property, my binoculars picked up a regular morning traffic pattern of furry shapes, a deer highway far uphill that led to a tiny stream on our neighbor's property. Day after day I counted as many as 13 deer, the sighting becoming part of my morning routine. Our land, about three acres on the north side of a hill, is about one quarter house and civilized garden and three quarters mature ash and tulip forest festooned with poison ivy and carpeted with honeysuckle. The ridge we live on between Roxborough and Conshohocken was named "Barren Hill" because of its shaly outcroppings. You cannot sink a spade or trowel into the ground without clanking into butter-stick sized hunks of rock. Our land, once part of the old Andorra Nursery. adjoins orderly rows of mature trees meant to be transplanted but now towering majestically. I love their winter look, especially on a misty morning. In fact, my partner and I have found ourselves more and more drawn to this wild upper area. A pair of great horned owls nest in a grove of white pine on an adjacent property (borrowed scenery for us). In mid-May scarlet tanagers flit for a few days among the new ash leaves finding something tasty on their trip north. An earlier owner of our house had planted a little grove of daffodils at the edge of the woods. After our first spring on Barren Hill I began enlarging the daffodil plantings and my woodsman partner began challenging the underbrush with axe and weedeater.

What really rallied our energies was that ever-present three-leaved plant, poison ivy. Its rope-like hairy trunks clung to every tree and it developed on some stretches of ground those ominous woody upright stems that define a climax growth of *Rhus toxicodendron.* What we didn't touch ourselves, Elsa brought us on her coat. Fels Naptha became our house soap brand. Woodsman Wolfe hacked and yanked and itched making a real dent on the area above the daffodils, freeing the trees of poison ivy. "Round-up" sprayed in spring on the actively growing plants discouraged the woody upright posion ivy and slowed down the honeysuckle.

I never thought one could have too much* Lobelia cardinalis *but the effect this year was not that flash of red that makes your heart leap when you see it solo along a mountain stream. It was rather like an army of unkempt redcoats marching with poor posture through the garden.

weekend warriors

We began to realize, however, that we had no plan, only energy. A string and stake path that we laid out pointed a direction, but we didn't know where we were going. We weekend warriors, approaching our golden years, had taken on quite a chunk. But it was the question of my level-headed friend, Eleanor, that really got us thinking after I dragged her up the hill to see our new project. "Just what *is* it you're trying to do?" I had visited enough good gardens to know some of the choices for land like this. We could feature native plants or Japanese plants or concentrate on spring bloom or specialize in ground covers. Her question set us thinking about what fit for us.

Over many morning cups of coffee on the terrace, woodsman partner and I discussed the possibilities. The rather formal boxwood bordered garden developed long ago for this old house now requires more maintenance than creativity. We agreed we would keep it presentable but would put our energies into an informal uphill woodland walk. On our morning and evening rounds with dachshund we wanted to see something colorful or interesting at any season of the year. We hoped that eventually we could introduce some water interest in the form of a small pond or even a little stream. We wanted to create some magic for visiting grandchildren: a place to sleep out, find a toad, glimpse a fawn, swing from a tree.

We knew that to have the bloom and variety of plants we hoped for, we needed more sun and therefore, fewer trees. We consulted an arborist who advised that we have a huge wild cherry cut down, and remove the lower limbs from the grove of tall ash trees. When this was accomplished, my partner tackled the understory removing all shrubby plants except the dogwoods, deciduous hollies, Japanese maples and winged euonymus, all remnants of Andorra Nursery stock. The change was dramatic. We had patches of filtered sunlight, the grassy grove long ago planted with daffodils became a natural "center" and the woodland was ripe for our kind of development. That meant using "borrowed scenery," a logical looping path, and maybe a few surprises along the way.

We planted the edges of our string and stake path with what I considered a generous number of astilbe, epimedium, hosta and foxglove. It was like sprinkling mushroom spawn for a mass effect in Central Park. Our plantings were almost invisible. We needed quantities of plants and, realistically, years for them to develop. A family property in western Pennsylvania provided a beginning with some of its abundant *Cimicifuga racemosa,* ferns and hepatica transplanted successfully to our woodland. Gnarled old stumps, that we trucked east from the property, helped define and give logic to turns in our path. Still the effect was very subtle.

Then Eleanor persuaded us to join the American Rock Garden Society. We discovered the Delaware Valley chapter's

photos by Mary Lou Wolfe



The territory of the elusive, unphotographable furry gang of 13.



May's mix of *Primula japonica* and *Hosta sieboldii*



Kwan Yin, Our Lady of the Eternal Hostas

spring and fall plant sales and the national ARGS Seed exchange. Now we could, as members, buy terrific plants at reasonable prices and meet people who know not only rock gardens but also woodlands. Eleanor gave us double bloodroot. Other friends hearing about our project shared native pachysandra. *Begonia evansiana*, *Asarum europaeum*, *Phlox subulata*. From ARGS seed we grew *Astilbe chinensis pumila*, *Hosta venusta*, and other woody beginner's plants. All very satisfactory for our woodland and shady rock garden.

the deity

Our path was developing but we needed an uphill focus. We found it at a favorite

continued



The woodsman constructing a woodland pool at Deer Park East.

garden center in the form of a bust of Buddhist deity Kwan Yin. We installed her above the highest loop of our path and planted the statue's base with *Hosta sieboldiana,* ferns and epimedium. The furry gang of 13 were overjoyed and overnight transformed the sizable clumps of blue-green hostas into something resembling yucca plants, every leaf devoured with only stems left bristling. Because these tough plants survive and even multiply despite periodic defoliation by the deer, Kwan Yin has been christened, with apologies to Buddhists, "Our Lady of Eternal Hostas." Henry Mitchell, one of my favorite garden writers, says "Sculpture, quite apart from being the most difficult of all fine arts, is a poor team player. It rarely looks like anything but a mess, if required to be part of a larger frame of reference. I do not say sculpture cannot look good in a garden, merely that in practice it never does. I exaggerate, but not much." Of course, I feel Kwan Yin is the exception, signaling the top of the path and being a subtle, distant presence that may or may not have the company of the grazing herd.

deer park east

It was the herd of 13 that pushed us into our first project for grandchildren. Uphill from the boxwood garden a tiny, ancient tool storage house and a bank of bottlebrush buckeye *(Aesculus parviflora)* separate woodland from civilized garden. Two huge Japanese yews flanked and overpowered the doorway of the little house. During the first week in April '81 I noted in my garden diary "Something's different about the Japanese yews – something about their shape." Two days later as I drove in at dusk, the herd exited the garden house area having devoured all 6 ft. of greenery on the yews. The ugly bare trunks looked ridiculous. We ripped out the remains, decided to fix up the garden house as a playhouse, and to work toward a shady rock garden to replace the yews. Woodsman became carpenter and sawed out a window, installed a bunk, hammered a wooden deer cut-out on the door and named the playhouse "Deer Park East." It will take a brave grandchild to spend the night there but it may serve as a deer blind for me and my camera.

A little surpise installed on the south side of the garden house is the ubiquitous statue of a little seated boy, familiar but very comfortable on a slab of local blue marble and framed by a wall of *Hydrangea petiolaris*. Just at the time we were fixing up Deer Park East, a friend arrived with flats of *Primula japonica* and *Lobelia cardinalis* seedlings. We planted them in front of the little boy statue because it's our moistest area. The primula were lovely and the cardinal flower thrived. I never thought one could have too much *Lobelia cardinalis* but the effect this year was not that flash of red that makes your heart leap when you see it solo along a mountain stream. It was rather like an army of unkempt redcoats marching with poor posture through the garden. In fact, in quantity it looked like red salvia, hardly one of my favorites. Next year's seedlings will go to friends and to the PHS plant giveaway. I'll use restraint with what I leave in the woodland but as the buds of *Lobelia cardinalis* are attractive to deer, the herd will help.

Now that we had some light in our woods we began to plot for water. We put a free-form black plastic pool above the garden house disguising its edges with irregular rocks. *Azalea bakeri,* a lovely deciduous orange flowering variety, borders the pool along the *Primula denticulata, P. japonica,* oakleaved hydrangea and *Helleborus niger*. Hens and chicks are thriving in the rotting stump of the old cherry tree. The long-range plan calls for a little trickle of water to emerge from rocks near Kwan Yin's base and to flow gently down through the grassy center section, terminating in the little black pool. Then the water will be pumped back uphill to recycle. My partner, woodsman/electrician/plumber has brought electricity and water as far as the little garden house and a preliminary streambed has been dug. We hope our little stream will look so natural that Eleanor won't say, "Just what is it you're trying to do?" The deer will love it.

You may wonder why we are so passive about the deer. Sometimes when I see a whole bank of *Sedum spectabile* oozing sap from chewed stems or find the special *Aesculus pavia* buds crunched before they can bloom, I curse the deers' selective palate, efficient teeth and sharp hooves that dig into my carefully nurtured moss beds. The reality is that I am both too lazy and too busy to hang human hair sacks, provide rock 'n roll music in a barrel, spray Thiram, hang bars of soap, and I'm not convinced these measures would work. Our area is too big for the recommended 8-foot high fencing to be affordable and its installation would put an end to my "borrowed scenery." I am interested in the less instrusive plastic fencing David Benner has been experimenting with and hope that product becomes available. (See Benner's article on page 23.) In the meantime we are sharing the forest begrudgingly. Triplet fawns appeared in our herd this year, a sign of high quality food in the region. No wonder Kwan Yin has an enigmatic smile. Maybe the hosta that skirts her statue is a fertility drug for ruminant mammals.

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Mary Lou Wolfe is the horticultural librarian at PHS.



The Gardener As A Deer Hunter

by David E. Benner

I have an unusual garden of two acres in a wooded area of Bucks County; lawns of moss and groundcovers instead of grass, wildflowers, deciduous and evergreen shrubs, and trees complete the picture. I also live in an area with a surfeit of deer. It is not uncommon to see a herd of 60 or more grazing in a nearby field.

For many gardeners the question is how to keep the deer from eating whatever we are growing. Vegetable gardens, orchards, trees, vines, shrubs, flowers, spring blooming bulbs are all subject to deer browsing. Some people like the deer, however, even if they destroy vegetation on their property.

My neighbor across the street is such a person. I was complaining to her about losing plants to the deer two winters ago, and she said she was sorry. She went on to say that she and her daughter open a window to their front yard (even in winter) and play several records for the deer. She insists the deer like the music and lay down near the window until the records are finished, then get up and walk away. I thought to myself, they leave the concert and walk across the street for dessert at my home.

It doesn't take many deer and it doesn't take them long to damage a lot of plants. For example, one January morning, two years ago, I got up early and looked out the bedroom window. A large doe was chewing up azalea buds about 15 feet from the window. I dressed quickly and rushed out to chase the critter away. I ended up chasing three more.

Before going to work that morning, I surveyed the damage. As I expected, they had all singled out one of their favorite evergreen azaleas, ruining about 40 plants. A careful check that evening showed they had eaten just the flower buds. Disgusting!

So what can be done? I have tried about everything I could think of and am still looking for a solution short of shooting them. I do not like to kill anything, but I have about had it with the deer. Every May my garden is open to the public, and there were almost no azaleas to see in the spring of '84.

The following remedies were only temporary, but they were better than not doing anything at all.

- Bags of human hair, last two to three months.
- Dried blood is expensive, lasts about one month.
- Rags dipped in creosote, last several months; unpleasant odor and messy.
- Mothballs; expensive; need too many to do any good. Last about a month.
- Soap, pieces tied in bags and hung here and there. Helps for about two months.
- Fresh wolf dung or mountain lion dung; odor is bad in warm weather. Hard to obtain. Only lasts about two or three months but very effective.
- Radios, play them loudly. Some people say this works well. I wouldn't like the noise.
- A dog can work, but not for me.

Other solutions:

- For vegetable gardens: lay chicken wire that is 3 or 4 ft. wide flat on the ground around perimeter of vegetable or flower garden. Keeps deer out of the area from April to November because the deer are afraid to step on it; their feet get caught in it. Not effective in winter when snow is on the ground.
- A metal mesh fence around an area will keep deer out but it must be at least 8 ft. tall and is expensive and unsightly.
- For over 10 years I had good luck with a simple, cheap fence. On a wire 4 ft. from the ground, which was nailed to trees and posts around one acre of my property, I tied white venetian blinds every three feet and also aluminum pie plates (see illustration). This was my best solution until last year. It looks terrible but works, except when there is snow on the ground. Then they occasionally walk under or easily jump over. Why it worked so well I don't know. They always managed to get in several times, however, during each winter to do a lot of damage.
- Penn State has a new design for an electric fence that does work. Contact your County Agent or Penn State University. It involves using wires at different heights but not one above the other.
- Last October I tried an experiment around one acre of my property. It has kept the deer out, after I made some alterations. The material is a thin, clear (yellow color) plastic 1 in. x 2 in. mesh fencing six feet high. My son and I nailed it to trees in the woods around the property. This included a piece for the two driveways. One acre was then completely enclosed. In November and December of 1984, some deer came in, not by breaking through or jumping over, but by pushing their head at the ground and sliding their bodies underneath. At that time they got inside and couldn't get out, so they simply panicked and easily broke through to get out. In February I had to secure this plastic mesh fencing to the ground every 3 ft. The deer have not been in since, and I am thrilled. What is so nice is that you can't see this fence unless the sun shines on it, and then there is a pleasant yellow-transparent glow that is not objectionable. In 10 months, no deer have jumped over to get in and none have run into it and broken through. (See note in sources.)

She insists the deer like the music and lay down near the window until the records are finished, then get up and walk away. I thought to myself, they leave the concert and walk across the street for dessert at my home.

- Another control tested with limited success at the University of Washington is selenium. A pellet has been developed and used with success in Washington and Oregon. The pellet is dropped in the hole when a seedling tree is planted. The selenium is absorbed through the roots of the plant and transpired as a strong-smelling

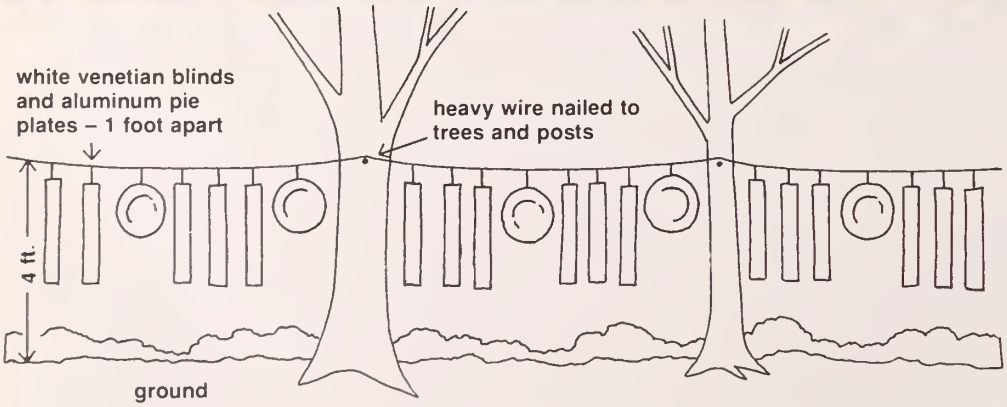
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The deer fence with sunlight.

Without sunlight the deer fence is invisible





The author has had good luck with this fence for 10 years; white venetian blinds and aluminum pie plates are strung on heavy wire one foot apart.

gas through the foliage (the odor is similar to garlic). A concentation as low as two parts per million in the foliage is enough to keep the deer away (they do have a very keen sense of smell). One pellet lasts about three years. The product will not be available for at least another year or two. For additional information contact: Victor Baltrusiatis, Noranda Sales Corporation Ltd., P.O. Box 45, Commerce Court West, Toronto, Ontario, Canada, M5LIBG.

After gardening for over 20 years with an increasing deer problem, I have made a list of evergreen plants that the deer have never eaten (see listing below). With some plants I believe it must be the odor. Two good examples on this list would be the genus *Buxus* and *Chamaecyparis*.

Evergreen Shrubs and Trees "Resistant" to Deer Browsing

Buxus spp., cultivars and varieties
Berberis julianae, *B verruculosa* and *B triacanthophora*
Chamaecyparis lawsoniana and cultivars
Chamaecyparis obtusa and cultivars
Chamaecyparis pisifera and cultivars
Cephalotaxus Fortuner, *C drupacea*
Cryptomeria japonica and cultivars
Ilex opaca, varieties and cultivars
Ilex aquifolium, varieties and cultivars
Ilex pernyi 'Veitchii'
Juniperus procumbens 'Nana'
Leucothoe fontanesiana
Mahonia bealei
Osmanthus heterophyllus
Pieris japonica, varieties and cultivars
Picea pungens, varieties and cultivars
Picea glauca, varieties and cultivars
Skimmia japonica and *S reevesiana*

Sources for Plastic Netting

E. C. Geiger
Box 285
Harleysville, PA 19438

Bruce King & Co (many types available)
1055 Bertelsen Rd #9
Eugene, OR 07042

*The 1 in by 2 in yellow mesh that I used has been discontinued. I have a limited supply left. For more information write to

David E. Benner
Ornamental Horticulture Department
Delaware Valley College
Doylestown, PA 18901

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David E. Benner is an assistant professor at Delaware Valley College.



A swan hoe, garden fork and vine hoe "on the stump."

A TRIO OF TOOLS TO LEAN ON:

A Suburban Gardener's Selection

by Joe Colanero

Adapting the techniques of an intensive local market garden to my home grounds in Woodbury, New Jersey, has brought about welcome yields, thanks to all the benefits of raised beds, wide rows, succession planting – and the right tools. Now a vegetable and flower garden of 30 by 70 ft. produces quantities unimaginable under the space-grabbing open row culture, which is more suitable for distant open prairie than a parcel under the shadow of William Penn's hat.

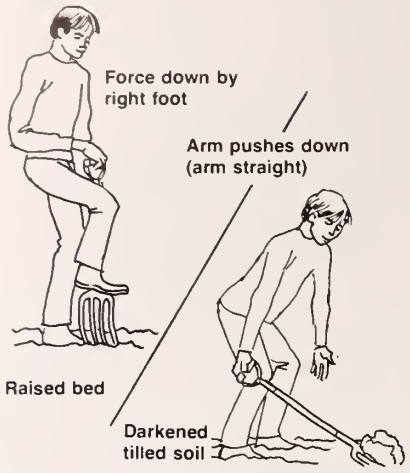
Curiously, much literature surrounds the craft of gardening, but little attention is given the tools needed to accomplish the various tasks. Even less is written on the use of hand tools. A powerful lobby exists to promote power tools and sufficient scribes to polish the memory of antique tools. Yet, the hand tools bred or useful for the unique demands of intensive gardening remain in the shadows.

I have muddled through the clumsy use of the customary shovels and garden hoes to arrive at a very helpful trio: a garden fork for cultivation, a swan hoe for light weeding and a vine hoe for hilling and heavy weeding. Together, these tools complement each other in a system for all the main chores. Because they suit their intended use, they handle the jobs with little effort. After all, gardening is, or should be, a refuge of relaxation from the pace and complexities of the modern workaday world. And restful it is, especially since these hand tools engage the body through the extensions of hands and feet to become one. With only minimal safety precautions, the whole experience of the refreshing exercise outdoors is rather exhilarating. No need to resort to the harrowing moments of terror with those awesome power tools.

I, too, had my stint trying to fit the much-advertised roto tillers and shredders into my backyard patch. The decision to part company with the last motorized monster came easy. After coaxing a gasoline powered shredder out of the tight potting shed, I had begun to feed the noisemaker handsful of trash-picked leaves. Forced to stand immersed in noxious fumes, I was about to toss in another batch of leaves when I noticed the glitter of a glass bottle ... instant decision. I now have one more compost

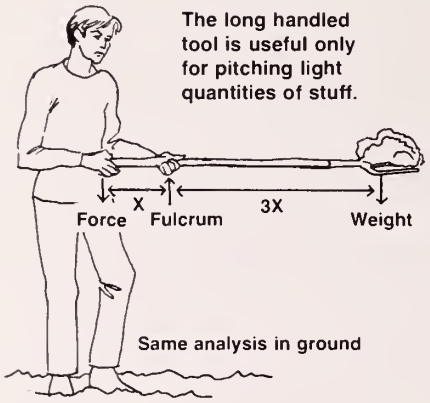
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USING GARDEN FORK

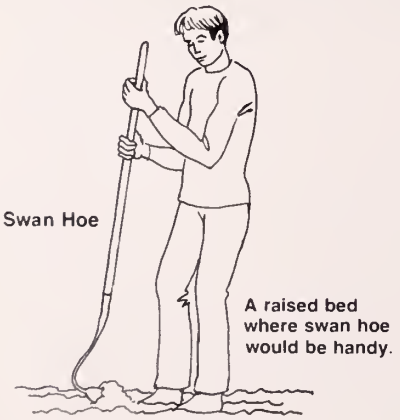


Inserting
Lean body slightly forward. Foot on "shoulder" of fork. Both hands on "D" handle, or one hand slightly below hand on top "D" handle. Body close to tool. Keep tool as vertical as possible to fluff the full width of raised bed.

Pulling Back
Body leans greatly, right hand and arm straight, left hand loose and free.



Here's why:
The leverage afforded by handle works both ways – the force of a heavy weight is increased by handle lever; that is why few long-handled forks are sold.



Using Swan Hoe
Has long handle for use close to body and to keep blade perpendicular to soil surface. Body erect, hands high.

pile and let mother nature do the work – with patience. By the way, that power shredder is now a Treasury Bill

the garden fork

I first discovered the real value of the proper cultivating tool when I realized the advantages of using a garden fork over the traditional shovel. Once I learned the folly of needlessly straining to lift and invert soil during cultivation before planting, the switch was easy. The tines of the garden fork insert easily into the soil to fluff it, allowing air and water to penetrate. The tines can be moved through the soil to break up the clods and level the surface. A shovel would have, on the other hand, placed the biologically active top portion well below the surface during the "turning." The garden fork improves the critically important soil structure without the more laborious lifting and turning process. Even worse would be the rototillers. They ruin the structure of the soil by pulverizing the particles and, again, inverting the soil.

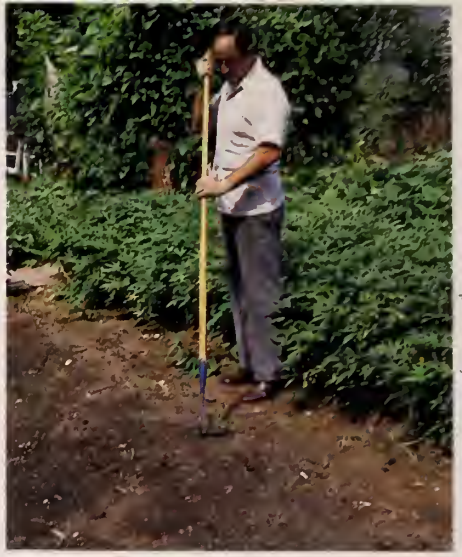
The conventional garden hoe behaves like a bull in a china shop compared to the swan hoe.

My method of using the garden fork is simply to insert the tines to their full depth and pull back on the handle. Each spring, the raised beds get this treatment as well as before each succession crop. Going up one side of the bed and down the other – inserting and pulling back – the job is easy and takes only minutes. I have pondered using other more specialized forks, but the garden fork earns its keep by being handy for other jobs such as turning compost and lifting root crops. I have also thought of going to a long handled tool instead of the D-handle waist high tool I now use. The leverage would ease the pull-back, but add other problems if you intended to use it for pitching heavy materials. "A long handle," says a tool researcher, "would only be useful for pitching light quantities of stuff because the weight is away from the body. That's why long-handled forks have been discontinued."

For women, an ideal tool might be the less cumbersome smaller and lighter "border forks." They fit in the floral and herb borders where space is scarce.

the swan hoe

The next tool of the trio earns a "thumbs up" for the manner and ease of use in the next main task of gardening: weeding.



photos by Joe Colanero

Author weeding with swan hoe. Note upright position and hand grip.

Named after its swan-shaped head, this unique tool is called a swan hoe and is designed with an acutely angled head to cut weed roots just below the surface. The sloping shoulder shape of the head permits sneaking up close to the plant stems without injuring them – very appropriate in the tight spacing of raised beds.

The conventional garden hoe behaves like a bull in a china shop compared to the swan hoe. The conventional hoe's action during weeding amounts to bulldozing the surface, which takes a lot of effort. The swan hoe freely slices the weed roots, and in doing that, brings less weed seeds up to the surface for later germination. The acute angle mentioned, its lightness and the shoulder high handle allows use in a comfortable upright position. The handle of the swan hoe is held in a thumbs up manner close to the body. Weeding has become such an easy chore that I am likely to be the only necktie gardener to be found weeding in the minutes between breakfast and the dash to the office. My place has never been so weed free.

Others might want to consider a smaller hand version of the swan hoe. It would be handier for use in the confines of a cold frame, flower bed, patio pot or greenhouse.

the vine hoe

Through a misfortune, I came upon a surprisingly useful tool, a vine hoe. When my mother's basement flooded, I was asked to remove some family heirlooms for safe keeping. Out of that pile came the vine hoe, a tool I would have thought suited only for mounting on a wall, too antiquated for use today. I was wrong. It was perfect for maintaining the tough garden paths and for hilling corn and potatoes.

My mother tells me the vine hoe was brought over from Italy nearly a half century ago by my grandparents. Over on the

"other side," when you carried one tool for miles on foot to the family farm land, that one tool had better do it all.

The vine hoe weighs four pounds with a head 5 in. wide by 9 in. long. This hefty tool can attack the garden paths like no other tool when the weeds have become sod-like, which is all too likely when your civic spirit keeps you away from the routine demands of gardening.

Now that I use the vine hoe, I don't have to widen the paths to maneuver the lawn mower. The narrower paths give me more raised beds in my backyard patch.

An additional benefit of the vine hoe is its use for hilling corn and potatoes. As with sod busting, the hoe is held in front swinging in a pendulum-like fashion. I suppose the idea is to let the tool do the work with a paced effort instead of forcing with faster swings.

Since the vine hoe is not exactly in the "top ten" of garden tools, the closest alternative would be the grub hoe. Many sizes and patterns are available though, and if you can, try one to suit your size. A friend at the office says he could never use my short handled vine hoe. He's right. Try different lengths. A vine hoe, or any other tool, should fit the user, be it length or weight.

Weeding has become such an easy chore that I am likely to be the only necktie gardener to be found weeding in the minutes between breakfast and the dash to the office.

The handy combination of garden fork, swan hoe and vine hoe have helped this suburban gardener to produce enough food for freezer and friends. Though not new, these tools get the job done with minimal effort and time. The latter is inescapable, and along with space, the limits are set in what you can achieve. I've tried motorized and conventional hand tools, but I'll keep my new-found helpers. When I went into the potting shed to compare my useful three to my old conventional garden hoe, only after a fruitless search did I realize I had lent it out over a year ago, and I didn't miss it.

The mix of tools should satisfy and match gardening plans as well as the gardener. With standardization the rule today, the buyer may need to do some shopping to get that special item with the right feel in size and weight. Whenever the opportunity exists, swing all the hoes you can into real soil. That's impossible to do at a store or through a catalog purchase. You may, however, find the source for specialty tools from mail-order firms.



The author "vine hoeing" garden path.

Earlier comments might cause you to consider a tool with a long handle. Are they superior for some jobs? To answer that question I checked with Fred Heuser, who with his wife Jeanne, operates the Meadow Sweet Herb Farm in Blackwood, New Jersey. Smiling, he leaned forward and softly asserted "Sure my old farm friends knew the long handles were better – but they never bought them."

I had been hooked. "Why not?" I asked.

"Cause they wanted the field workers to use them ... *not lean on them!*"

Sources of Quality Tools ...

Both the common names given hand tools and the designs vary considerably. Use the variations to select a tool suited to your needs.

Country Market Nursery
Route 15
Old Gettysburg Pike
Mechanicsburg, PA 17055

Waterloo Gardens
200 North Whitford Road
Exton, PA 19341

The G Boys
Route 70
Marlton, NJ 08053

Ledden and Sons
Center Ave.
Sewell, NJ 08080

Mail order sources (catalogs free)

Green River Tools
P.O. Box 1919
Brattleboro, VT 05301

Smith & Hawkin
25 Corte Madera
Mill Valley, CA 94941

●

Joe Colanero is a social worker who gardens in Woodbury, NJ. He also writes a weekly gardening column for several southern New Jersey newspapers.



Vine Hoe
Hold hoe in front to avoid strain. Hold almost as you would hold a baseball bat. Paced use brings about a small arc, without lifting hoe very high. More height would be needed to cut tree roots. One tool distributor told me Americans don't like to bend over when using a tool; that's sad because with this tool, it's easier. The effort, while more strenuous than using a swan hoe, need not be "all-out" as with using an axe, or chopping wood. The length should be matched to the user. The tool the author is using in photo is about 2-4 in. too short, but better short to keep it in front.

ANNUAL VINES FOR TERRACE GARDENERS

by Bob Hyland



Ipomoea nil 'Early Call Rose'

photos by Bob Hyland

Some city gardeners are fortunate to have outdoor terraces or decks. Whether at ground level or on the 19th floor of a high rise apartment building, annual vines can soften these harsh architectural features and provide leafy green barriers for privacy. Many herbaceous climbers also reward gardeners with several months of colorful, often scented, bloom.

One of the many amenities of my former downtown apartment in Wilmington, Delaware was its second floor deck. It afforded ample floor space for outdoor dining and entertaining, as well as container-grown plants. The deck measures approximately 12 ft. by 8 ft. and is constructed from pressure treated (Wolmanized) lumber to retard decay. A low 3-ft. railing on the north side allows an unobstructed view of the courtyard garden below. Seven ft. dividers constructed from 1 in. x 6 in. boards nailed 2 in. apart to a 2 in. x 4 in. framework created the barrier between my deck and adjoining terraces on both the east and west.

I quickly filled the floor of my outdoor space with pots of annual flowers, herbs, and summering houseplants. The stark vertical walls became the next available surface to turn green.

Choosing between annual and perennial vines was easy. Woody perennial vines often require large containers to accommodate their root systems and would take up too much space. Winter insulation around containers to prevent frozen root balls during prolonged cold spells would be essential. Perennial vines also intimated a sense of permanency that is never inherent in renting a property.

Annual climbers best fit the parameters of this landscape situation. During the last four summers I have grown a wide assortment of flowering herbaceous vines. Most produced attractive foliage and abundant bloom even when grown in small containers. Only a few were susceptible to disease and insects or required a longer growing season than the mid-Atlantic states afford.

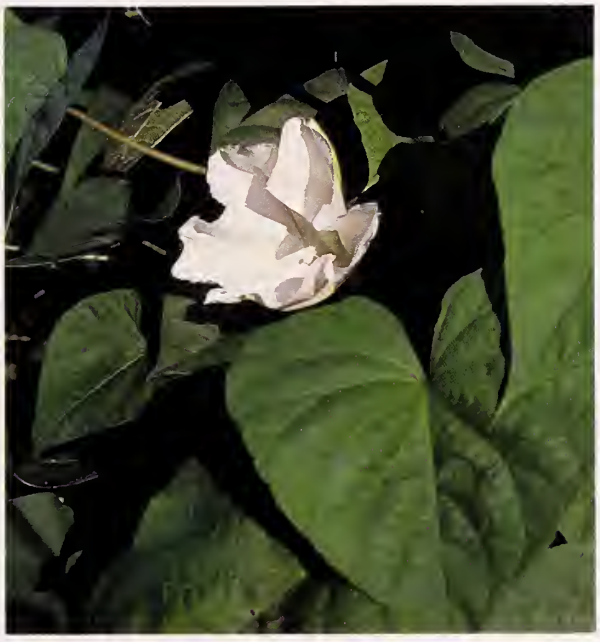
A dynamic vine duo that works well in a small space is morning glories *(Ipomoea* spp.) and moon flower vines *(Ipomoea alba)*. Two summers ago I planted the morning glory selection 'Scarlet O'Hara' on one wall of my deck. On the opposing side clambered the night-blooming moon vine. The staggered flowering time of this vine combination is its best attribute, especially for gardeners who work during the day. Vibrant scarlet-red morning glory blossoms measuring almost 4 in. across greeted me in the early morning hours as I groomed myself and my potted plants before leaving for work.

When I arrived home in the evening, the morning glories were closed, but the spectacular pure white flowers of the moon vine were primed to open before my eyes, as if I were watching time-lapse photography. While dining alfresco the subtle fragrance of the moon flower was amplified in the small enclosed deck space. As dusk fell the flared white trumpets were clearly visible under reflected light from the city. Under a full moon and starlit skies the flowers show off their best, living up to their common name.

Moon vines only come in white, but there is a great diversity among morning glories. Flowers are available in many different colors and sizes and there are species with



Hyacinth bean *(Dolichos lablab)*



◀ Moonflower vine blossom

Right: morning glory on fence; left, moonflower vine on divider. ▼



heart-shaped leaves *(Ipomoea purpruea)* and three-lobed leaves *(Ipomoea nil)*.

selections

Selections that I have grown successfully in containers include 'Heavenly Blue' with its intense sky blue flowers that fade toward the center. Another of my favorites 'Early Call Rose' has rose-pink blooms with distinctive white throats. In most years I have been particular about color schemes on my deck, but a morning glory seed mix purchased one year in a local supermarket produced a satisfying assortment of pastel blooms.

edible landscaping

Being a strong proponent of edible landscaping, I have also grown and evaluated a number of ornamental vines that produce fruit as well. The scarlet runner bean *(Phaseolus coccineus)* is a vigorous twining pole legume with coarse leaves and racemes of 10-30 intense orange-red flowers. Blossoms are quite showy against the green foil of the foliage. The vines are prolific bearers of 4-5 in. pods that are easily shelled for the beans that are best boiled.

A dainty, graceful vine to play against the vigorus scarlet runner bean is the cypress vine *(Ipomoea quamoclit)*. The dark green foliage is fern-like and dotted with small, star-shaped, scarlet flowers. I enjoy this vine in early morning and after sundown when the blooms are fully expanded. The red hot flowers are more enjoyable in the cooler temperatures and less intense light.

By far my most exciting edible vine discovery of the past several years is the hyacinth bean *(Dolichos lablab)*. Early in its growth the deep burgundy stems and leaf petioles hint that this climber is no ordinary garden bean. I was genuinely surprised when the 6-8 in. spikes of white to rosy-pink flowers began to open in great abundance. The inflorescences resemble a sparse spring-flowering hyacinth bulb, suggesting the plants' common name.

I was in for a bigger treat when rich purple pods grew to 4 in. and took on a high sheen. For the past two years I have planted hyacinth bean on the west facing divider on my deck so that the shiny clusters of fruit would reflect the late afternoon sun. The purple stems and fruits combined attractively with pots of *Setcreasea pallida*

continued

Purple Heart' and a variegated chartreuse and purple coleus named 'Pineapple Beauty.' Left on the vine for ornament or harvested for shelling, the hyacinth bean is a dual purpose vine guaranteed to steal the show.

There are several other herbaceous vines that aren't often seen cultivated anymore, but still appear in seed catalogs. One that I grew for the first time recently is the cup-and-saucer vine or cathedral bells *(Cobaea scandens)*. I planted seed in flats indoors in late April and transplanted the seedlings to window boxes in May for an early display. The seedlings quickly put on a lot of vegetative growth and climbed vertically without much assistance. The end leaflet on the compound leaf develops a tendril with tiny suction cups that clings to wire netting and also attaches to any rough surface. Where there is a lot of area to be covered, cathedral bells is a sure bet to grow to at least 30 ft. and is a good choice for covering bare walls and fences. It also will tolerate some shade.

It was not until September, however, that the large graceful bells put on their show. Green in bud, the one-in. blooms transform to shades of lavender and purple. They dangle from the foliage on long pedicels creating an unusual profusion of bloom and are followed by plum-shaped fruits.

Another unexpected surprise four years ago was the purchase of a rare cutleaf nasturtium. A local garden center guaranteed the plant to develop trailing stems that could be easily trained upright. A devotee of garden nasturtiums, I fell prey to the purchase of this curiosity. I was sure I would be the only one among my gardening peers to be growing a nasturtium with small, multi-lobed leaves up my deck walls.

A quick look in *Hortus Third* identified the twiner as canary bird vine *(Tropaeolum peregrinum)*. The derivation of the common name became apparent when the vines reached 4 ft. and commenced blooming. Looking little like the spurred blossoms of the bedding nasturtiums, the bright yellow fringed petals did indeed resemble small canaries among the delicate foliage.

The two plants I purchased were not enough to completely cover one side of my deck; they also fell prey to a severe outbreak of black aphids. It was not until I traveled to the international horticultural show in Munich, Germany later that summer that I witnessed the effect of a fence line clothed with canary bird vine. This sight remains etched in my mind providing the inspiration for more successful attempts at growing this climber in Wilmington.

A hot color combination with *Tropaeolum peregrinum* is black-eyed susan vine *(Thunbergia alata)*. Twining vines sport bright orange flowers with black eyes from early summer until frost. Other flower colors, some with black eyes, are available. This vine is rather low-growing and has a tendency to grow downward if not encouraged up. It is more suitable for low trellises and fences.

At first my neighbor seemed to appreciate the green wave spreading across her deck. It was when the abrasive, sandpapery shoots snatched her arm and caused a minor skin irritation and then went for her stockings that she cried for help.

My only misguided experiment with herbaceous vines was growing variegated Japanese hops *(Humulus japonicus* 'Variegatus'). I was familiar with the hops of commerce *(Humulus lupulus)* grown for the dried inflorescences used to flavor beer. A similar coarse-textured plant bearing leaves splashed with yellow and white was appealing.

I intentionally planted it on a divider between my deck and a neighbor's because of its vigor. I secretly hoped the vine would quickly cover my side of the wall and make a subtle jump around and over the top. At first my neighbor seemed to appreciate the green wave spreading across her deck. It was when the abrasive, sandpapery shoots snatched her arm and caused a minor skin irritation and then went for her stockings that she cried for help. She liked the effect of the green foliage, but next year would prefer to have some of that hyacinth bean growing on her side of the divider.

growing from seed

The way I grow most of these annual vines is to sow seed directly into deep flower boxes filled with a sterile soil mix in mid- to late May after all danger of frost is past. The morning glory, moon and cypress vine seed are soaked overnight in tepid water to promote germination. Moon vine seed, in particular, has a very hard coat that must be softened or mechanically broken by filing. Once sprouted the young seedlings are thinned to 3-4 in. apart.

Most of the vines I have grown climb by twining and require poles, wire, string, or plastic netting for support. A quick and easy support system to cover a wood or masonry surface is plastic netting. It is commercially available at nominal cost from most garden centers. The mesh diameter is variable and also comes in black or clear. A staple gun quickly attaches the netting to wooden surfaces and masonry nails do the job on brick and concrete block. I find that the grow netting is cheap enough to discard in the fall or early spring. It can also be cleaned of less vigorous vine stems and reused if time permits. Vines with tendrils like the cup and saucer and the irritating hops are not worth cleaning.

The same cultural tips apply as for growing any plants in containers. A soilless growing medium requires a constant liquid feed fertilizer such as 10-10-10 or a slow-release feed like Osmacote worked into the planting soil.

Remember that herbaceous annual vines have a relatively short time to go from seed to flower and are often vigorous. Containers supporting a wall of foliage and flowers may need watering several times a day during the hot summer months. But the rewards of your care and attention will add to the greening of your personal space and of the crowded urban environment.

●

Bob Hyland is a staff member of the Education Department at Longwood Gardens. He has masters degrees in ornamental horticulture from the University of Delaware's Longwood Program and N.C. State University. His terrace garden won 1st place in the 1984 City Gardens Contest sponsored by the Wilmington Garden Center.

Mail-Order Sources for Annual Vines

W. Atlee Burpee Seed Co. 300 Park Avenue Warminster, PA 18974	Morning-glory *(Ipomoea)* 'Early Call Rose' 'Scarlet O'Hara' *(I. nil)* 'Heavenly Blue' *(I. tricolor)* Cathedral bells *(Cobaea scandens)* Black-eyed Susan vine *(Thunbergia alata)*
Park Seed Co. Greenwood, SC 29647	Moonflower vine *(Ipomoea alba* or *Calonyction aculeatum)* Cypress vine *(Ipomoea quamoclit* or *Quamoclit pennata)* Canary-bird vine *(Tropaeolum peregrinum)*
Thompson and Morgan P.O. Box 1308 Jackson, NJ 08527	Scarlet runner bean *(Phaseolus coccineus)* Hyacinth bean *(Dolichos lablab)* Variegated Japanese hop *(Humulus japonicus* 'Variegatus')



THE COLDFRAME IN WINTER

A single coldframe with two hinged windows will overwinter hundreds of young plants.

by Jeff Cox

The gardener has two options for using coldframes over the winter: leave the glass top off or keep it on. Both are useful ways to use the coldframe, but for very different reasons.

Essentially, leaving the top off and mulching the plants inside give them added protection against winter's most severe temperatures, and against cold winds. An uncovered frame is also a place to put plants that need excellent drainage in the winter. Glass or plastic covers can then go over the top to hurry the season along when the warming days of March and April arrive.

Keeping the top on over winter means that temperatures on sunny days will get hot, even in January. The heat keeps growth going over winter, and this option is usually used to produce salad greens.

In either case, I recommend building a coldframe in an excavated pit, so that the top is just above ground level. Snuggled into the earth like that, the frame is less drafty and more protected from the minimum temperatures. If digging out a pit is too much work, at least berm the sides by shoveling earth against them.

After the overwintered plants are gone, the coldframes can be used to give warm-weather vegetables an early start.

uncovered frame in winter

Our 13 raised beds are made of old 1 x 8 boards nailed together, and thus stand about 8 in. above the soil surface. We use them as sheltered places to overwinter plants, and also as covered frames when we lay old windows over the top. This double-duty arrangement gives us spinach salad in April here in Berks County.

We sow the spinach seed in the raised beds early in September. These make small plants by November, when the killing frosts arrive. When the plants are almost dormant, we spread about 12 inches of loose hay mulch over them.

The seedlings stay dormant and happy under the mulch, protected from the winter winds and watered by nature's abundant winter rainfall. When the days start to warm up in March, we remove the mulch and put the old window sashes over the raised beds. They aren't airtight, so there's little danger of overheating. Spinach is hardy and frost-resistant, so the glass protects them at night without the need for something to cover the glass. By mid-April, we're picking spinach for salads. Compare that to spring-sown spinach that doesn't produce until well into May, and then almost immediately bolts to seed. Our early spinach gives us six weeks of picking.

Kale and parsley are two other vegetables that can be mulched in an open frame and brought through the winter.

continued



photos courtesy of Rodale Press

The open frame is also valuable for protecting flowers, especially perennials that find Pennsylvania's climate rigorous. *Kniphofia,* for example, will often rot in the ground if left unprotected in the garden over winter. A common preventive is to tie the leaves up over the crown, but even this doesn't always work. The problem can be avoided by transplanting them to the coldframe when they reach dormancy, mulching them, then transplanting them back to the garden in April.

The same method protects *Gaillardia* and Oriental poppies *(Papaver orientale)* from winter crown rot. Many perennials of questionable hardiness can be brought through the winter this way. We once grew globe artichokes and brought them through a winter here by mulching them with two feet of leaves covered with hay bales. The next season, we ate Pennsylvania artichokes – a rare delicacy indeed.

The beautiful blue *Myosotis,* or forget-me-not, is a biennial that graces many of the nicest spring gardens in May. An easy way to keep a supply of *Myosotis* and other biennials coming is to sow seed directly in the coldframe in August or early September, then mulch them heavily, just like the spinach, when the killing frosts come. By removing the mulch in late March or early April and using the glass tops, they'll be ready for transplanting to the garden in a few weeks.

Gardeners who want a lot of specimens of a certain plant can start them in coldframes from seed, mulch the little plants over winter, then move them to the garden in spring. Quite a few species will bloom the first year, but slow-growing plants like *Aruncus* and *Astilbe* may need a year in the garden before you see flowers.

Young plants in pots that overwinter well in an uncovered, mulched coldframe include ajuga, asters, campanula, delphinium, dicentra, echinops, euphorbia, gaillardia, geum, gypsophila, kniphofia, oriental poppy, shasta daisy, platycodon, polyantha primula, viola, violets, and wild flowers.

covered frames

If you use glass or acrylic covers to keep growth going all winter, earth berming or setting the coldframe into the soil is even more important. Six feet down in the soil, the temperature never gets much below 48°F, and even a couple of feet of soil around the frame will soften winter minimums by 10°F. The clear covers need to be fitted snugly against pieces of weatherstripping to keep cold drafts out of the frame.

A thermometer for inside the coldframe is a good idea. On sunny days in February, temperatures in an airtight coldframe under glass can reach 100°F or more. When the temperature inside the frame gets above 85°F, prop up the glass cover just a bit to let some heat escape.* This must be attended to on sunny days as spring approaches or you'll bake your plants to death. And don't forget to water the plants often over the winter when using covers.

When the sun goes down, temperatures inside the coldframe will plunge to about the ambient air temperature unless the glass or plastic is covered. Old straw mats, rugs, blankets, tarp or even hay mulch placed over the glass at night should keep temperatures in the frame about 35-40°F, depending on outside temperatures. These must be removed each morning.

You might be able to grow some lettuce this way, but research has shown that spinach, New Zealand spinach, Chinese leafy greens like pak choy, and turnip greens do better – and all are a lot more nutritious than most lettuces.



When the March sun gets strong, temperatures in the frame can reach over 100°F. Props are used to keep the glass open to allow heat to escape.

Keep your coldframe construction simple. They work best if the cover slopes toward the south at about a 15° angle. When covers are used, the slope allows rain to run off and more sunlight to reach the soil surface. Frames are easily sawed out of sheets of ¾-in. exterior plywood, lap-jointed and nailed. You can make covers from polyethylene, but old windows work well. Perhaps the best cover is a panel of acrylic or plexiglass plastic. These are shatterproof, long-lasting, but a little more costly than glass.

*Automatic vent openers are available from a number of sources including Park Seed, Hwy. 254 N., Greenwood, SC 29647 and W. Atlee Burpee, Warminster, PA 18974

●

Jeff Cox has been writing for *Organic Gardening* for 15 years. He and his wife, Marilyn, are authors of a new Rodale book *The Perennial Garden* to be published later this year.



A glass storm door and an old piece of plywood were used to make this serviceable, if inelegant, coldframe.

Letters to the Editor

wintertime chemicals

In the November issue of *Green Scene* on page 21, an article that has to do with chemicals in the wintertime and their effects on plant life states: "Another way to help your plants is to use calcium chloride. It melts snow more quickly and at a lower temperature, and is less toxic to plants than rock salt."

In checking with our resident expert I am told, as I suspected, that calcium chloride is just as toxic to plant life as sodium chloride. I understand it is the chloride ion that causes the problem and the calcium and sodium ions have not much affect on the health of plant life. Some years ago, I am told, a study was undertaken by the Virginia Polytechnic Institute for the Transportation Research Board on the effect of calcium chloride and sodium chloride on plant life and concluded that there was virtually no difference in the effect of either of these chemicals on plant life. They both had a deleterious effect about to the same degree.

The author of this article, Joanne Miller, may have some comment on this observation. Perhaps she has access to some research information that we do not have. In case she does, we would be interested in learning about her information source.

John L. Ryon, Jr.
President
International Salt Company
Clarks Summit, PA

voles: how to eliminate?

Would any of the readers of *Green Scene* know what to do with voles? They are ruining my best hosta in spite of poison, fumigation and a cat. Watering with a weak kerosene solution (plus two tbsp. to a bucket of water) at planting and every few weeks helps but it is time consuming and does not eradicate the problem.

Mrs. J. Plater-Zyberk
Chester Springs, Pa.

***veltheimia* corrected**

The "Growing Interests" section (p. 34) of the September/October 1985 issue of *Green Scene* included a note on *Veltheimia*, a South African bulb sometimes called the winter red-hot-poker. The species names of this genus have long been confused in the botanical literature and the horticultural trade. Although the bulbs are often displayed or offered for sale as *V. viridifolia*, taxonomic work at Kew herbarium determined *V. bracteata* to be correct. *V. viridifolia* is considered to be botanically illegitimate.

In addition to the sources listed previously, *Veltheimia bracteata* may be purchased from McClure & Zimmerman, 1422 West Thorndale, Chicago, IL 60660.

Rick Darke
Curator of Plants
Longwood Gardens

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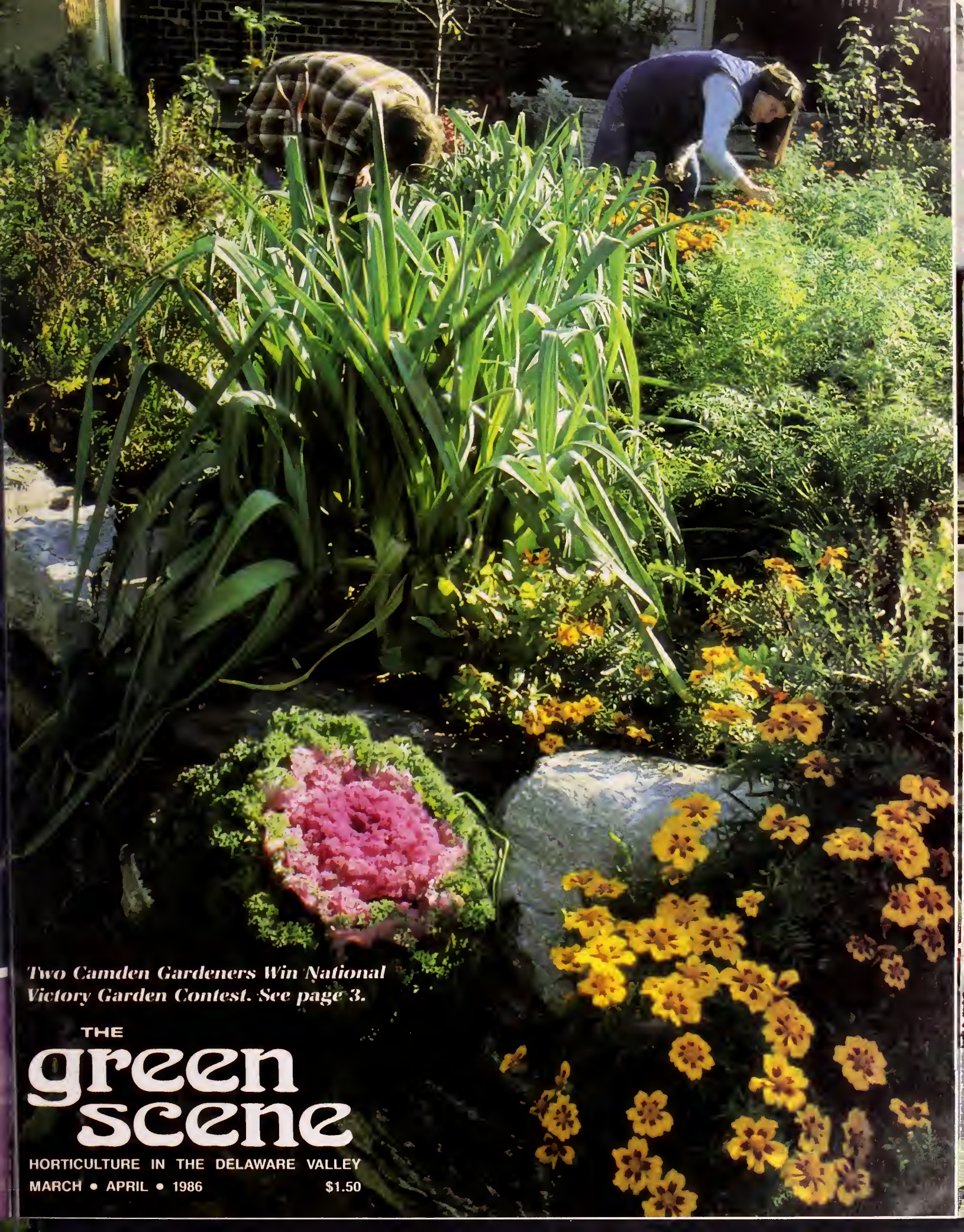
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Eleanor's bloodroot *(Sanguinaria canadensis* 'Multiplex') in the woodland garden. See page 20.

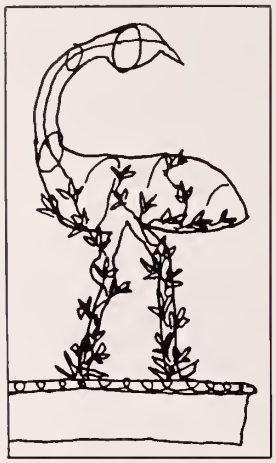


Two Camden Gardeners Win National Victory Garden Contest. See page 3.

THE green scene

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Front cover: Mike Devlin and Valerie Frick, Camden gardeners and winners of the National Victory Garden Trowel Award, harvest leeks in November. The garden still abounds with marigolds, ornamental kale, carrots and leeks.
photo by John Gouker

Back cover: Some of the many wines produced from grapes grown in Pennsylvania.
photo by Mary Pat Kane

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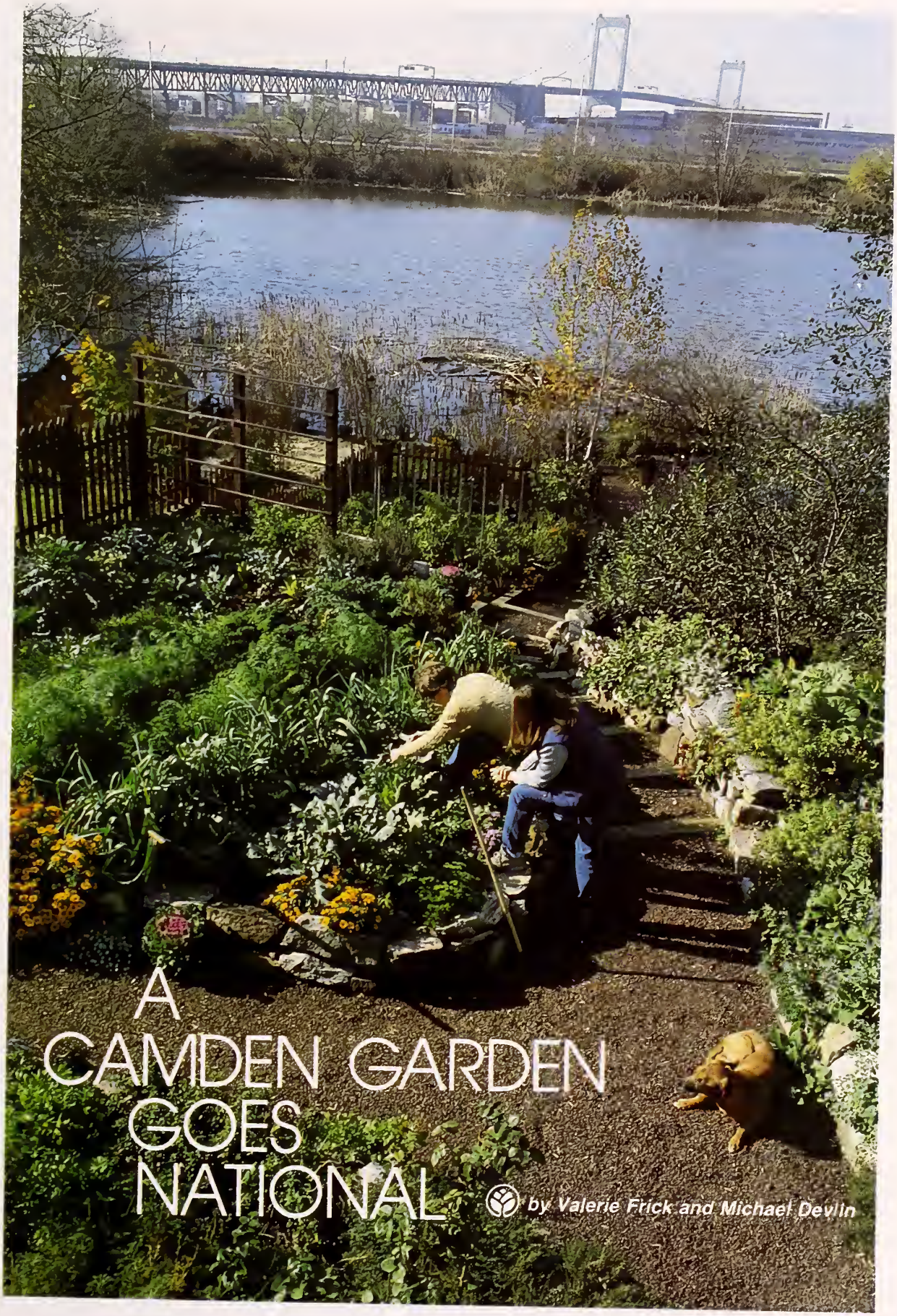


photo by John Gouker

It took Mike Devlin and Valerie Frick seven years to clear a junk-filled marsh before creating nine gardens surrounding their Camden row house. This view (photographed in November) shows some of the seven rear gardens sloping 100 ft. down to the marsh. The Victory Garden contest national judges were so impressed they awarded Valerie and Mike the Silver Trowel for the best garden from among 2,500 entries.

A CAMDEN GARDEN GOES NATIONAL

by Valerie Frick and Michael Devlin

Meet the Winners of the National Victory Garden Competition

CAMDEN GARDEN

continued

On the morning of September 19, 1985, we awoke and did the thing we have enjoyed doing each morning for the last seven years. We surveyed our backyard gardens from our second-story window with the same emotion as that of new parents looking into a hospital nursery. This particular morning was special. We were awaiting a telephone call from the "Victory Garden" television program, that originates in WGBH-TV studios in Boston, announcing the winners of the nationwide 7th Annual Victory Garden Contest. This was the day the ballots would be counted ending several weeks of excitement and anticipation since our gardens had been selected one of the six finalists.

During this hectic but fulfilling period we had been the subject of several newspaper articles, a supportive editorial, television newscasts and visits by more than 600 fellow gardeners, each of whom received a personal tour of the gardens. This "instant" fame was a result of a visit by program host Jim Wilson and the "Victory Garden" crew in mid-August to film our gardens for a segment on their show. We had seven minutes to communicate to a national audience the results of seven years of hard work, which for us was a labor of love.

When we moved into our Camden, New Jersey rowhouse we recognized that drastic changes had to be made. Our home had an all black-topped "parking lot" for a front yard and more of the same asphalt and concrete treatment in the rear. In the back, whatever was not paved was choked with weeds, vines and poison ivy. An eroded, rubble-strewn slope dropped down to a tidal marsh along Newton Creek, which had unfortunately degenerated into a local dump site. We certainly had an improbable, if not impossible, garden site. As gardening neophytes we had no idea about the challenges that awaited us. We had read, however, that a composting program was a good thing for would-be gardeners to undertake. Little did we know it would be one of the keys to our future success.

It was late in the year, August 1977, when we moved in, much too late to begin a garden. So we cleaned the yard, pulling weeds wherever they had been allowed to grow. We started a compost heap with the refuse and retired to the safety of our home to treat the worst case of poison ivy we had ever encountered. That fall we added our neighbor's discarded leaves, which we obtained under the cover of darkness. And we began to regularly watch "Crockett's Victory Garden."

Early that following spring we treated ourselves to the best-selling companion book written by James Underwood Crockett. Armed with the requisite knowledge, enthusiasm and encouragement, we left the comfort of our warm, dry home for the light freezing rain of a March morning. We were hard put to find an adequate patch of soil to turn over with all the asphalt and

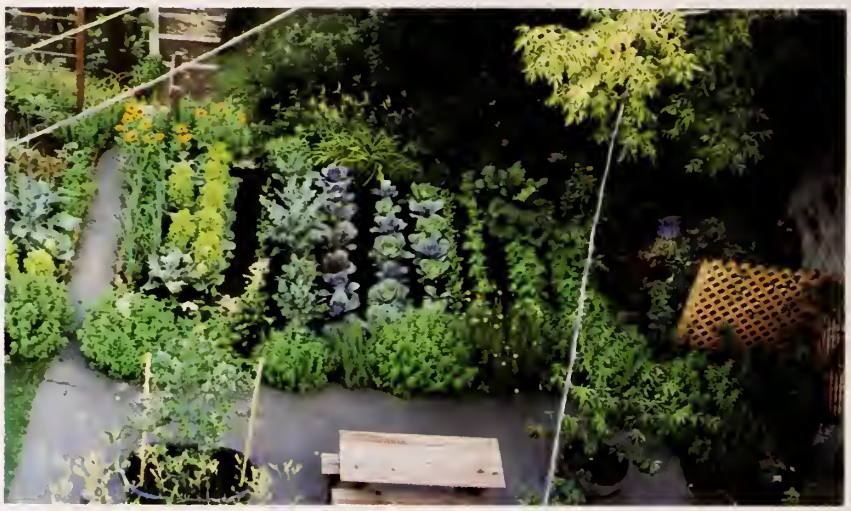


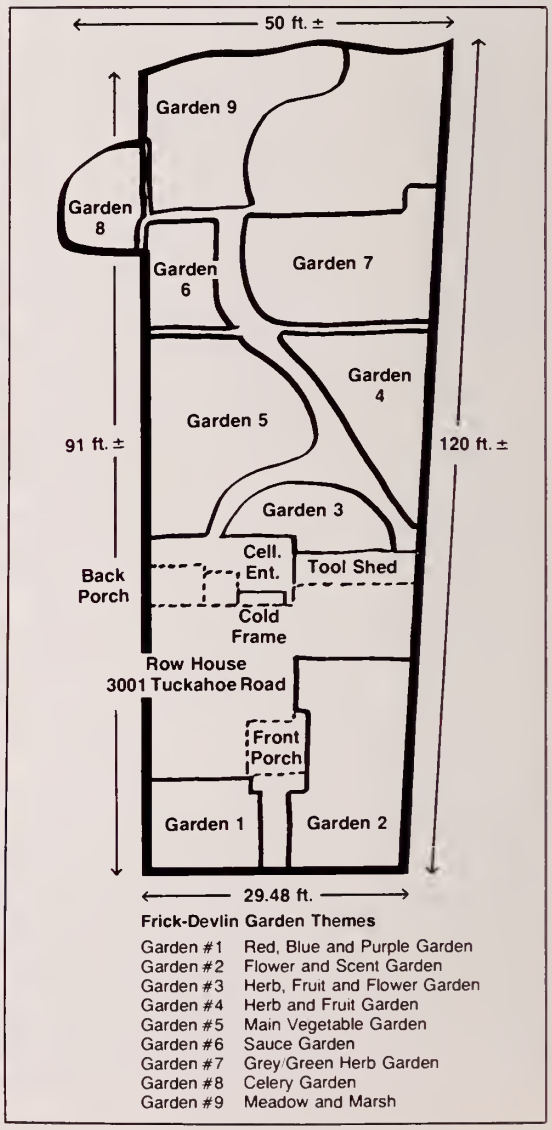
photo by Valerie Frick

Valerie and Mike cleared several areas of asphalt and concrete before they could garden. Here's the rear vegetable garden in the summer.



photo by Valerie Frick

The tidal marsh was transformed not by dramatically altering the area but by propagating and encouraging the vegetation indigenous to this fresh water tidal marsh.



Frick-Devlin Garden Themes

Garden #1	Red, Blue and Purple Garden
Garden #2	Flower and Scent Garden
Garden #3	Herb, Fruit and Flower Garden
Garden #4	Herb and Fruit Garden
Garden #5	Main Vegetable Garden
Garden #6	Sauce Garden
Garden #7	Grey/Green Herb Garden
Garden #8	Celery Garden
Garden #9	Meadow and Marsh



photo by John Gouker

The garden in front of Frick and Devlin's Camden home. Valerie and her companion Maude enjoy the November sun during a fall clean-up. The globe amaranthus, opal basil and eggplant have already been harvested.

concrete about. So, we began several small gardens around the yard. In time each of these grew slowly towards the others as we ripped up the blacktop and removed the combination of cinder, coal-ash and construction debris, replacing it with rich compost. Nothing was wasted as the broken pavement became the base for reconstructed bulkheads and dry pathways. Further, our numerous brick paths are the "gifts" of the wasteful construction contractor who built Fairview Village during WW I.

Slowly but surely our "parking lot" disappeared, transformed into an integrated landscape of thematically interwoven gardens. The gardens were connected by gently curving pathways dropping off in terraced slopes, spilling out into the marsh and open water.

The tidal marsh was transformed not with dramatic alterations but rather the propagation and encouragement of the natural vegetation indigenous to a fresh-water tidal marsh. We sought to enhance and gently mold nature while creating and integrating an occasional bed and dry walkway. First we had to clear out the junk, the hundreds of old tires, shopping carts, bottles, cans, oil drums, driftwood. The engine block of an old V-8 was turned into a planter. The creek and tidal marsh yield a substantial benefit in that they modify the climate helping to postpone the frost by several weeks and provide free fuel for our woodstove. The ashes are returned to enrich the soil. The marsh is a double edge sword, however, and the perpetual dampness requires our constant vigilance against fungus and disease.

While we have devoted much time to the rehabilitation of the tidal marsh, most of our efforts have gone into creating gardens contained in raised beds constructed of stone and wood. All the stone was scavenged at an abandoned demolition landfill; much of the wood came from a friend's barn. Our plantings are intensive and ver-

continued



photo by John Gouker

CAMDEN GARDEN

continued



photo by John Gouker

Fall clean-up, harvest and exercise on a November day by two happy and victorious Victory Garden winners, Valerie and Mike.

tical often growing on trellises, fences, walls, cages or stakes. Many plants, including two productive peach trees, are grown in containers. These techniques are a must in an urban environment where open space is at a premium.

Our gardens contain a profusion of vegetables, herbs, fruits and flowers planted in an edible landscape organized in the following themes: Red, Blue and Purple; Flower and Scent; Herb, Fruit and Flower; Herb and Fruit; Main Vegetable; Sauce; Grey/Green; Celery; and Meadow and Marsh Gardens. In addition, our gardening spread beyond the boundaries of our property in 1985 and included a plot in the Urban Community Garden Program.

We created our integrated edible landscape after seriously re-thinking our garden's landscape, purpose and feeling when we were selected as semi-finalists in the 1984 Victory Garden Contest. At that time we received a visit from the Victory Garden's Rudy Perkins who toured our garden and encouraged us to renew our effort in 1985. Before undertaking any major projects we reworked numerous plans and themes.

Our goals were to expand the several unconnected gardens and connect them into a workable whole that would demonstrate productivity and harmony, convey beauty and a sense of pleasure, while physically and emotionally drawing the visitor into the gardens. We believe that our personal goals have been accomplished for the most part and 1985 was a productive year for us. We were not certain, however, that the Victory Garden staff would be sufficiently impressed with these changes to select us as semi-finalists and then finalists.

Good fortune was with us in 1985, and we became finalists. In addition to putting the final touches on our garden we worked frantically to prepare a garden luncheon for our longtime "TV heros" Jim Wilson, Russ Morash, Dick Holden, Nina Sing and company. Most of the food came from the garden and the recipes from the *Victory Garden Cookbook* by Marian Morash. At the end of the taping we had a great party.

When we became finalists we recognized that our fate was in the hands of the national audience of the "Victory Garden," who would vote by selecting their favorite garden from among the six finalists. We knew the competition would be close.

Ours was the first urban garden to reach the finals during the seven years of the contest. We wondered if our fellow viewers would be attracted to a relatively small garden whose hallmark was overcoming adversity as opposed to the large multi-acre plots of our competitors. We were fortunate to receive favorable publicity and generous support from several community and political groups in the City and County of Camden. It seemed as though scores of family, friends, neighbors and even strangers were circulating post-cards to secure votes for our garden. We wondered what effect this "election campaign" would have for our garden. We also wondered whether the support of the people who took the time to visit our garden would make a difference.

September 19th was our truly "Longest Day." We went to work and spent every empty moment pacing in anticipation like expectant parents. We agreed that no matter what the outcome, this experience had been one of the most memorable of our lives.

When the telephone rang, Andrea Magoon from WGBH told me we had won. We were to fly to Atlanta to receive gardening's coveted Silver Trowel Award at Calloway Gardens at Pine Mountain, Georgia, on September 24, 1985. Then, sometime in 1986 we would accompany Bob Thomson, the host of the Victory Garden Program, on a garden tour of England. The unexpected bonus for us was that we were to be honored by the very people who for eight years taught us the most about the hobby we love. ●

Valerie Frick, a teacher and vocational evaluator. and her husband Mike Devlin, an attorney, garden in the Fairview Village section of Camden, New Jersey. They entered the nationwide Victory Garden Contest on three occasions and received Honorable Mention in 1979, became semi-finalists in 1984 and finalists and winners of the Silver Trowel Award in 1985. They have worked extensively on the annual Camden County Regional Peach Festival since its inception in 1983 as Mike was the co-organizer of the festival. In 1985, Mike co-authored a grant proposal, which was funded by the William Penn Foundation for the Camden Urban Community Garden Program. In 1986, Val, Mike and other Camden City gardeners have plans to establish a Camden City Gardeners Association to promote urban gardening in the city. Mike and Val have been members of PHS for eight years.

THE PHILADELPHIA STORY
Indoor Topiary

by Barbara S. Gallup and Deborah A. Reich

The development of indoor or portable topiary is a story of creative Philadelphians updating and enlivening a British horticultural tradition. While topiary, the art of coaxing plants into sculptural forms, has its roots in classic Roman villa gardens, it experienced its most epidemic popularity in 18th and 19th century England. Large garden ornaments, and even entire landscapes, were carved from holly, yew and boxwood. Plants were hewn and clipped into pyramids, globes, columns and all sorts of animals, birds and decorative objects. The most classic shape is the peacock, which has been traditionally a symbol of nobility. The species was an Oriental import to Europe, so shrub imitations were far less costly than a live bird.

These vegetal interpretations of architectural and zoological shapes required years of effort. Five to ten years of diligent pruning elapsed before shrubs and trees assumed their assigned identities, and one slip of the shears could spoil the entire effect.

The American versions take far less time to create, are versatile without sacrificing artistic value and have an essential charm.

philadelphia topiarists: british sophistication and yankee ingenuity

In contrast, a new genre of houseplant sculpture has emerged. Developed essentially by competitors at the Philadelphia Flower Show, indoor topiary combines the best elements of British horticultural sophistication and Yankee ingenuity. The American versions take far less time to create, are versatile without sacrificing artistic value and have an essential charm. They can be moved from the living room window to enliven the outdoor garden during warmer months.

Just how quickly can an indoor topipary be assembled? "People used to ask me how long it took to get a finished chicken," laughs noted Pennsylvania horticulturist J. Liddon Pennock, Jr. "and I told them one and a half to two hours." Many types of modern houseplant topipary, made from herbs and fast growing vines, are trained on frames and Show perfect within months.

William Lawson, an early 17th century garden writer, encouraged Englishwomen of his time to train rosemary "for their pleasure to grow in sundry proportions as in the fashion of a cat, a peacock or such things they fancy." Delaware Valley herb fanciers also use the traditional herb of friendship and remembrance to create topiary, coaxing this and other favorite subjects into spirals, two-dimensional fantasies and standards. While some gardeners use *topiary* and *standard* as interchangeable terms, successful herb trainer Sally Reath succinctly defines the standard as "a straight stem with one crown of growth on top." Inspired by the verdant sculpture she encountered in European travels, Sally Reath uses myrtle and rosemary to repro-

continued



photo by Edmund B. Gilchrist, Jr.

Cecily Clark tends her *Westringia rosmariniformis* in her greenhouse. Her topiary won at the 1985 Philadelphia Flower Show the one-time award by the Garden Club of Philadelphia in memory of Dorothy Sims Keith for a trained plant showing great distinction and artistic merit exemplifying cultural perfection because of its training and grooming.



photo by Edmund B. Gilchrist, Jr.

Kenneth Gordon's lion took a first at the Philadelphia Flower Show. The lion's mane is Kenilworth ivy *(Cymbalaria muralis)* and the body, baby's-tears *(Soleirolia soleirolli)*.

duce the symmetrical treasures of Italy, France, and England in small clay pots. Occasionally she uses broom handles to train tall spirals of rosemary, removing the poles when the plant is woody and firm. Cecily Clark, her skilled contemporary, creates small jewels that evoke classic topiary shapes in myrtle, rosemary, lavender and rare "Victorian rosemary" *(Westringia rosmariniformis)*.

For the past 25 years, Philadelphians have been nurturing all manner of movable topiaries for display at the spring Flower Show. As early as 1962, in *The Art of Training Plants,* Ernesta Drinker Ballard wrote that "many flower shows include amateur competitions in eagles or other figures formed of potted ivy..." As an example, she includes an illustration of the late Dorothy Keith's ivy eagle. Many topiarists recall this superb bird as an inspiration to create their own figures in ivy. Dorothy Keith left her frames hollow. She described her methods in a 1961 article entitled "Training Plants on Frames" for the Brooklyn Botanic Garden Handbook *Trained and Sculptured Plants*. (For more on hollow frame and other topiary techniques, see accompanying box.) For show purposes, Dorothy Keith advocated removing dead or yellowing leaves daily with tweezers, and polishing each leaf with a moistened cotton swab!

hollow vs. stuffed frames

The skeletons of Keith's eagle and other modern indoor topiary figures probably had their origins in the florists' funeral frames of the late 19th century. Before the 1890's, floral frames were constructed of bent willow, with flowers laboriously tied to depict ships, hoops, and even the Gates of Heaven ajar to receive the departed. By 1897, Peter Henderson wrote in *Practical Floriculture* that "wire frames have entirely superseded the old methods of winding flowers to sticks ... the frame gives the florist at once the desired form, and makes it easy for any person of taste to arrange flowers in the shape of an anchor, star, etc. ..." The frames were filled with damp moss, with blooms inserted to cover the surface.

Modern stuffed topiary is almost identically constructed (see box). While some plant artists feel that the moist surface of the moss raises humidity and encourages the development of shoots and rootlets, others feel that the constantly damp surface of the form endangers the health of the plants trained on top. Dorothy Keith's and Liddon Pennock's style belongs to the hollow school of indoor topiary construction. Liddon Penncok won't stuff his ivy and rosemary chickens, believing that damp moss invites mildew and rot.

Philadelphian Dorothy Haas creates her topiary animals in the tradition of the florists' funeral frames. She feels that stuffing the frames and planting them with numerous rooted cuttings produce a more uniformly covered figure than the method of training a single plant over a hollow framework.

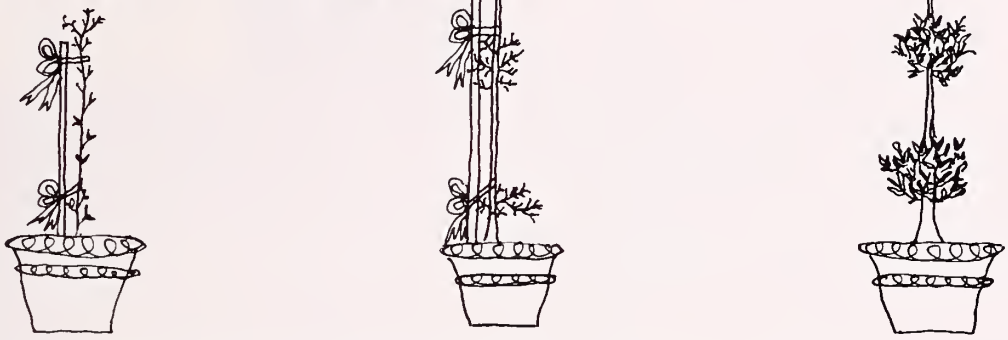
Dorothy Haas's first entry in the spring Show was a proud rooster. The frame was made by Kenneth Lynch, founder of the Connecticut garden ornament firm that bears his name. He emphasizes the expertise required of both the metal worker and the grower. "Of course, it is very important that the maker of topiary forms understand sculpture," says Kennth Lynch, Sr. "and it is equally important for the trimmer who trims the ivy to make these things expressive." The cockerel took first prize in 1963, and was created with four varieties of ivy. The tail was planted with 'Manda's Crested,' a curly type of ivy, with the body covered in a flatter, brighter green variety. For the head, a tiny-leaved ivy was selected, while the comb was fashioned of lacy 'Needlepoint.'

Dorothy Haas experimented with other ivy types in later projects, most notably her circus seal. This clever beast balanced a two-tone ball on the tip of his nose. He is exquisitely rendered, thanks to Dorothy Haas's ability to select the perfect plant to express color and texture. 'Shamrock'

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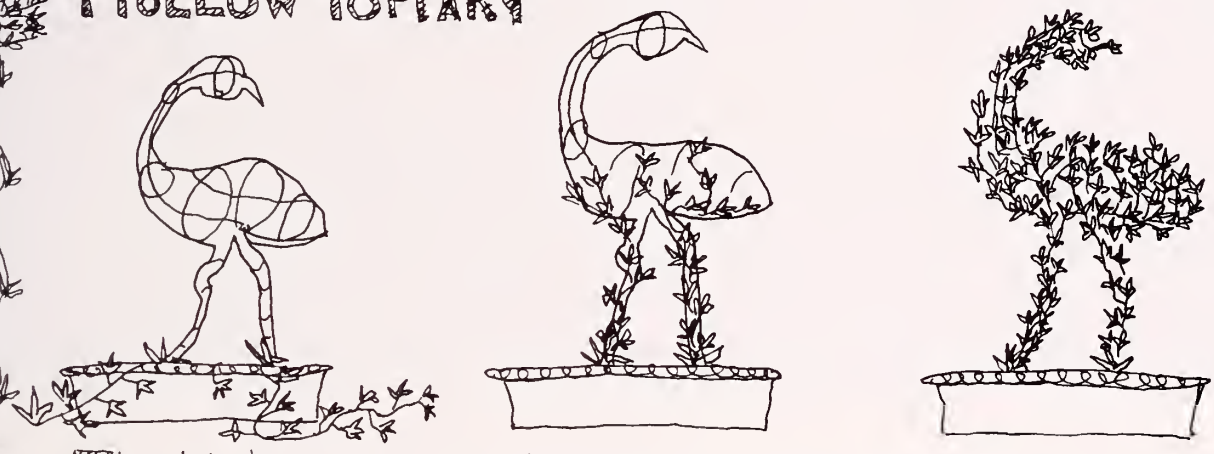
THREE SCHOOLS OF INDOOR TOPIARY

PRUNED TOPIARY



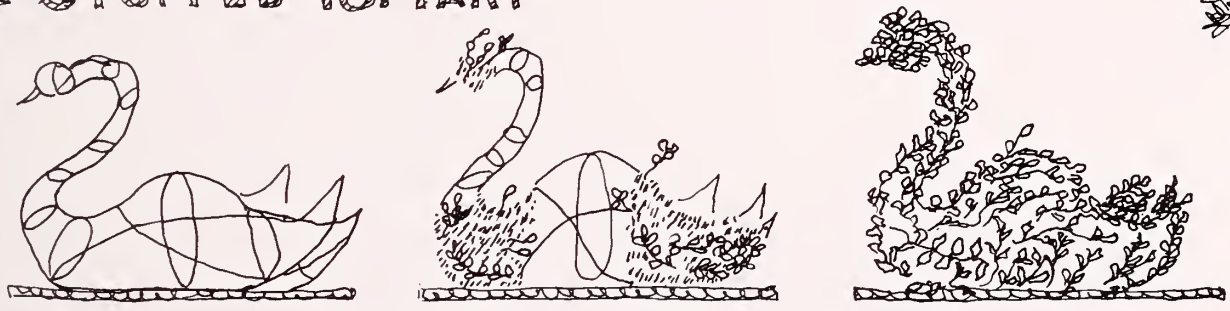
This method closely resembles traditional outdoor topiary. As a plant matures, its woody trunk provides support. Frequent pinching and trimming ensures a symmetric shape. Upright herbs such as myrtle, rosemary and santolina are favorites for this type of training.

HOLLOW TOPIARY



This style depends on a wire frame to support and define the figure. Any trailing small-leaved plant is a candidate. Rosemary, ivy, and hoya are favorites. A frame is set over the vine growing in a pot. The tendrils are tied to the frame with twine, or woven between the wire. As growth progresses, branches are trimmed to maintain a smooth appearance.

STUFFED TOPIARY



As the plants are planted directly into the form, stuffed topiary is free standing. The wire frame is packed with sphagnum moss, wrapped with sheet moss and lashed with fishing line or florists wire. Creeping fig, ivy and baby's tears are popular choices.

1985

Ann Calder



photo by Edmund B. Gilchrist, Jr.

Sally Reath at work in her greenhouse.

gives the seal's body a sleek and shiny appearance, while the ball is composed of alternate stripes of white splashed 'Glacier' and an anonymous green ivy.

In recent years, Flower Show competitors have sought a wider variety of plants and subject matter to entrance the public – and to entice the judges. Kenneth Gordon of Radnor, Pennsylvania has grown many unusual topiaries in anticipation of the Show. The first projects he recalls in the early sixties were a sea-turtle and a small ibis or heron. Kenneth Gordon's plant of choice for topiary work is baby's-tears, which he uses to cover the main portions of his sculptures. Details, however, are rendered using a variety of plants. He has used Spanish moss for a horse's tail and artillery fern for the mane. One year, March was ushered in with a lion whose pride was a mane of kenilworth ivy.

While most topiarists begin the process collaborating with a framemaker, Kenneth Gordon designs and constructs his own. Last year's dragon was raised for exhibition with utmost care. Ken Gordon bolted together a large steel frame, stuffed it with sphagnum moss, and planted it with dozens of baby's-tears cuttings. The beast was the sole occupant of his well-equipped greenhouse, with an entire automatic misting system directed at his glossy coat. Like Kenneth Gordon, Clarke Ott in Schwenksville makes his own frames. For the 1981 Show, he used about 1,000 green and gold baby's-tears plants to depict the stripes of a tiger that garnered Best of Day.

of a chair and a giraffe

One work many Flower Show spectators recall is a Chippendale chair, created by antique dealer Herbert Schiffer. As unusual as the choice of a chair for a plant sculpture may seem, it has its origin in 18th century England and Holland, where chairs were frequent topiary subjects. What made Herbert Schiffer's chair so remarkable was the seat, consisting of an assortment of variegated plants arranged in needlepoint-like mini parterre. The frame for the project, executed in collaboration with the late Mark Salter, is now in the collection of the Winterthur Museum.

In 1975, Morris Brownell longed to create a life-size giraffe topiary for the Bicentennial Philadelphia Flower Show. Realizing that an adult giraffe was an impractical project at best, he modeled his animal after a month-old Kansas born giraffe named Sunflower. Aided by David Wechsler and Barbara Warwick, he created the willowy six foot infant's likeness in steel and seven kinds of ivy. After winning Best of Show, Sunflower was donated to the Philadelphia Zoo where she inspired zoo horticulturist Charles Rogers to add to his green herd. For several years, the Philadelphia Zoo created large displays of creeping fig topiary for public enjoyment.

In 1985, the Flower Show acknowledged the Philadelphia area's English horticultural inheritance with the theme "A Touch of Britain – Our Garden Heritage." Meadowbrook Farm graced a large display area with a recreation of an English Mews. Nancy Story, topiarist at the unusual garden center, highlighted the scene with numerous plant sculptures: English peacocks and American eagles shared a plumage of creeping fig and ivy.

The imaginative adaptation of topiary to indoor culture has opened up a new realm of possibilities for plant display in private homes and public places. Each March, visitors to the Civic Center are treated to an increasingly varied array of plant sculptures. The ranks of indoor gardeners using small-scale topiary as fillips around the house continue to grow, while larger than life topiary exhibits appear at the Philadelphia Zoo, The New York World Trade Center and Longwood Gardens. The innovative efforts of Philadelphians have breathed new life into the art of topiary. What was once considered an arcane British obsession has become a versatile American form of expression.

Plants for Topiaries

Plants used for topiaries referred to in this article:

Ivy - *Hedera helix*
'Manda's Crested'
'Glacier'
'Needlepoint'
'Shamrock'
Creeping Fig - *Ficus pumila*
Kenilworth Ivy - *Cymbalaria muralis*
Baby's-Tears - *Soleirolia soleirollii*
Golden Baby's-Tears - *S. soleirollii* 'Aurea'
Artillery Plant - *Pilea microphylla*
Spanish Moss - *Tillandsia usneoides*
Rosemary - *Rosmarinus officinalis*
Victorian Rosemary - *Westringia rosmariniformis*

Bibliography

The Art of Training Plants, Ernesta Drinker Ballard. Barnes & Noble (division of Harper & Row), New York, 1962.
Practical Floriculture, Peter Henderson. Orange Judd Co., New York, 1897.
Trained and Sculptured Plants – A Handbook. Brooklyn Botanic Garden Record, Vol. 17, No. 2, 1961.

●

Barbara Gallup's topiaries have won prizes at prestigious flower shows, most notably in Philadelphia. She lectures widely on topiary and is creating new outdoor figures at Ladew Topiary Gardens in Monkton, Maryland.

After working at the Brooklyn Botanic Gardens and the World Trade Center, Deborah Reich became a freelance horticulturist, designing indoor displays and residential landscapes in New York City and in the Berkshires.

Barbara Gallup and Deborah Reich are collaborating on a book on the historical and current uses of topiaries and trained plants in the home and in the garden.

Ann Calder is a freelance illustrator and artist. She studied at the Corcoran Gallery of Art in Washington, DC and the Art Student's League in New York City. Her work has been shown in a juried exhibition at the Parrish Art Museum in Southampton.

RAISE YOUR SITES

Raised beds will not only ease those back pains, they can prolong growing seasons.

by Jan Riemer



photo supplied by author

Author harvests onions seated on old milk crate.

Ohhh, my aching back! A common expression for a universal problem that's often compounded once spring arrives and the gardening season begins. After two decades of digging, weeding, planting and harvesting, my husband and I were about to call it quits and put our gardens to bed permanently when a friend reminded us of the ease that raised beds offer to those with ailing backs. Any alternative was better than giving up our favorite hobby, so we promptly began to research this timely suggestion.

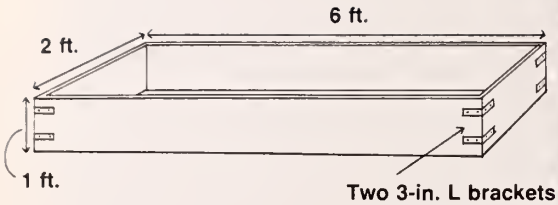
We've been encouraged by our own experience and research and can recommend raised beds. We found they:

- reduce watering requirements because soil and roots are concentrated within the confines of the box, thus eliminating the need for sprinklers
- reduce space requirements by eliminating walkways
- reduce maintenance time because it's virtually weed-free – the soil is loose, rich and never trampled
- maximize drainage if soil is prepared according to directions, which eliminates hardpan conditions
- permit earlier planting dates because the elevated soil becomes dry and warm earlier in the spring
- control distribution of nutrients for each species within its own confines
- present a neater appearance
- restrict plantings from running beyond the bed
- protect perennials from inadvertently being roto-tilled under the soil.
- offer better insect control
- allow two or more sowings of root and salad crops per season.

We found the raised beds more successful with root and salad crops. We suggest that unless you use special devices, such as trellises, for tomatoes, corn, polebeans and climbing crops you should continue to plant them in the traditional way.

Raised beds are often incorporated into the type of designs used for herb gardens, but with adjustments in size to accommodate individual needs, the same principles can be applied to either vegetable or flower gardens. Once a size is arrived at,

continued



**Frame only, no bottom
using 1-in. thick shelving board**



photo by Jan Riemer

Dan Riemer builds and readies boxes for a planting.



photo by Jan Riemer

however, it's best to keep them uniform for aesthetic purposes.

building the structures

Before purchasing building materials we called our county agricultural agent to ask about the use of pressure-treated lumber. We learned that the stain used on this type of wood is highly toxic and will be absorbed by the plants. Cuprinol, which can be purchased for about $15.00 a gallon in hardware stores or home building supply companies, was recommended as the safest preservative and should be used only on seasoned lumber. It is water repellent, effective against fungicides and insecticides and can be purchased in either a clear or a color to complement your home.

To enable us to reach the plants easily we decided on a long, narrow container. My husband constructed the box 2 ft. wide x 6 ft. long, one foot high using one inch thick shelving pine that provided 12 cu. ft. of planting space (see sketch). He then applied a coat of preservative. When that had dried thoroughly he repeated the process. To assemble he chose 3-in. L brackets, top and bottom, using a total of eight: he secured them with ¾-in. screws. He readily admits that a more professional carpenter could save money by framing out the corners with two by fours. We estimate the boxes can be assembled for approximately $25 each.

photo by Jan Riemer



Looseleaf lettuce grows in box on left; carrots in the foreground of box on right.

The project was completed after adding a 2 in. x 2 in. wooden handle at the ends and running it across the top to support a roll of six mil weight plastic cut to fit the box with enough over-lapping to secure it tightly around the frame when the weather turned cold. To our great surprise and delight, the handle, once the plastic was removed, gave the impression of an oversized, old-fashioned market basket brimming with vegetables, which added charm to our new designs.

In late fall, before launching the box into the sunniest part of our garden, my husband turned the soil over, removed the weeds, marked out the exact placement of the box (north to south is preferable) allowing 2½ ft. to 3 ft. of spacing between the six boxes we ultimately planned to have.

Had our soil been of clay consistency, we would have laid two inches of coarse building sand on the bottom to insure proper drainage, but it was only necessary to fill our permanent bed to within one inch of the top with a combination of our superior top soil mixed with a three-gallon bucket of compost, a gallon bucket each of dried, organic cow manure and peat moss, and a cup of 5-10-5.

After experimenting with different seating arrangements, we discarded seats made of wood and at a garage sale found a 12-in. high plastic carton such as those sometimes used by milk distributors. The carton proved to be exactly right for planting and weeding, and it relieved the back pain sometimes caused by excessive bending, stretching, stooping and pulling. Furthermore, it was portable, as we moved around the boxes.

planting the box

Before planting our fall crop of carrots, turnips, spinach and lettuce, we watered the soil and allowed it to settle two inches below the rim of the box. Our plantings were too late to realize a harvest of either turnips or carrots; we were, however, able to pick bibb lettuce and spinach until mid-December by covering the box with its plastic blanket. The plastic not only kept the plants from freezing but created a steady condensation that provided the right amount of moisture.

During a February thaw when the temperature climbed to 60°F on the 24th we planted carrots, spinach, turnips and beets. We tucked the cover tightly around the box and secured the sides with bricks and logs. By March 4th the little green seedlings were poking through the soil. What a joy it was to see them! When the temperature again dropped to 10°F with a wind chill below zero, I doubted if they'd survive the shock, but the robust little plants hung in there. We would have been eating the thinnings had a car not landed right on top of the box during an ice storm destroying the box and plants.

Almost any system of planting can be used, for example, block gardening where the same crop is planted together. If you opt to plant by the row method we find it best to intersperse the root crops such as radishes, beets or carrots between the leaf crops such as lettuce or spinach, allowing the root crops to develop without restriction. With such intense concentration of crop plantings, it's advisable to alternate the crops and reinforce the soil with additional nutrients before making a second sowing. A soil test should eliminate any guesswork. As you know, vegetables prefer a slightly acid soil.

Because the boxes have a tendency to dry out sooner than regular garden areas, due to their raised position, the prudent caretaker will want to add a mulch and keep a watering can accessible.

We suggest you start out by planting the vegetable varieties you are most familiar with, and gradually branch out and experiment with something you've never tried before including strawberry plants, flowers and herbs. For a touch of pure enchantment to a very practical form of gardening, edge the inside of the boxes with vines that spill and droop over the sides nudging the paths of cedarwood chips, bricks or flagstones that surround each box.

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Jan Riemer, a frequent contributor to *The Green Scene*, is currently doing a series of articles for the *Pennsylvania Magazine* on historic, old inns in Pennsylvania and their ghostly inhabitants.



photo by Richard W. Lighty

◀ Mr. de Belder named 'Jelena' after his wife shortly after they were married.

▶ At Longwood Gardens, *Hamamelis* x *intermedia* 'Jelena' develops the brilliant autumn color typical of the hybrid witch hazels.

The DeBelder Witch Hazels

Most gardeners know the witch hazels as large shrubs with fragrant flowers that appear during the winter, the most common and showy of these being the golden yellow Chinese witch hazel, *Hamamelis mollis*. They are among the hardiest and most persistent of winter flowering shrubs for they are adapted to bloom during warmer weather and to protect their flowers during bleaker spells by temporarily curling up their long narrow petals. In this way they can continue to bloom for many weeks during the depths of winter.

In recent years several hybrids of the Chinese witch hazel with orange and red flowers have become available to American gardeners. Some of the best of these orginated at the privately owned Arboretum Kalmthout (pronounced Kalm´toot) in Belgium where I served as an intern in 1979.

Located in Kalmthout, a suburb of Antwerp, the Arboretum occupies the site of an old nursery dating back to the mid-1800s when Philipp von Siebold was introducing and importing plants in great variety from Japan. Some of these plants ended up at Kalmthout and horticultural history is preserved there in several specimens believed to be original von Siebold plants.

During the early 1900's the nursery was owned and run by a man named Kort who had a particular interest in witch hazels. Kort hybridized and grew hundreds of witch hazel seedlings.

Around 1950 the then derelict nursery came up for sale and was bought by Robert de Belder. He and his wife Jelena, both great gardeners, have lived there ever since and developed an arboretum around the many fine trees in the old nursery.

Among many other special interests and collections at the arborteum, the de Belders continued the tradition of witch hazels and have continued to evaluate Kort's seedlings as well as grow their own.

Whatever it is technically, if I could have only one witch hazel, it would be 'Pallida.' Its pale yellow flowers are very large for a witch hazel and are profusely borne as well as being very fragrant.

Several of the best have been named and are now beginning to show up in nurseries in this country. The first of Kort's seedlings to be named was 'Jelena' (pronounced Yell´enna), named by de Belder for his new wife. The flowers are orange and it received an Award of Merit from England's Royal Horticultural Society in 1955.

Some years later, their finest red seedling was named 'Diane' (pronounced Dee-ann) after their daughter. (I've often seen this cultivar misspelled as Diana, ending in "a.") Carl Hahn wrote admiringly of 'Diane' in the November '85 issue of *The Green Scene*, and many regard it as the finest red variety. "Monsieur," as we called de Belder, explained that it does not have the tendency to fade to brown as does 'Ruby Glow,' a more common red cultivar with smaller flowers introduced from Kalmthout in 1946. 'Diane' received an Award of Merit in 1969.

Sadly, the original plant of 'Diane' is now declining, and in recent years the flowers covering a large portion of the plant seem to have lost their intense red color. Fortunately, this has no effect on the many younger plants propagated from it.

Other cultivars originating at the Arboretum Kalmthout are the canary yellow 'Primavera' (1969) and 'Vezna' (1970) with large orange flowers. These cultivars are classified as *Hamamelis* x *intermedia*, which are hybrids of the Chinese witch hazel and the Japanese witch hazel, *H. japonica*. Normally both species are yellow but the unusual red pigment is believed to have come from a rare red form of the Japanese witch hazel called variety *flavo-purpurascens*, which was probably used in early hybridization. The Japanese witch hazel has also given these hybrids a reddish orange fall color, while the leaves of the Chinese species only color to yellow. In the garden the intermedia hybrids show increased vigor and hardiness and nor-



photo by Robert Hays

Hamamelis x *intermedia* 'Diane,' the best red cultivar available, was named for the de Belder's daughter.



photo by Richard W. Lighty

by Charles O. Cresson

mally bloom from early February to early March in the Delaware Valley.

In addition, Monsieur de Belder believes that 'Pallida,' an older cultivar, and the finest yellow, actually originated at Kalmthout. It was raised at the Royal Horticultural Society's Garden at Wisley, England, but the records there state that it came from seed "from a neglected nursery in Holland." Monsieur explained to me that no nurseries in Holland were growing witch hazels from seed at the time and Kalmthout is actually quite close to the Dutch border so he feels sure that 'Pallida' must have also originated at Kalmthout. 'Pallida' is usually listed as a form of the Chinese witch hazel but differs in several ways and may very well belong with the *H.* x *intermedia* hybrids too.

Whatever it is technically, if I could have only one witch hazel, it would be 'Pallida.' Its pale yellow flowers are very large for a witch hazel and are profusely borne as well as being very fragrant. It also has the advantage of forming a somewhat smaller plant than the others with yellow fall color. It is no wonder that 'Pallida' received the Award of Merit in 1932 and a First Class Certificate (the highest award) in 1958. Regrettably this is probably the most difficult variety to obtain at present but there is an excellent specimen to whet your appetite at Winterthur Museum and Gardens behind the Visitor Center.

Even today, a new generation of hundreds of seedlings is being raised and evaluated at the Arboretum Kalmthout. The de Belders have found that it takes many years to evaluate a good seedling since the flowers improve markedly as the plants age.

Although witch hazels will grow in full sun, we would do well to remember that in their native habitat they are woodland plants and enjoy partial shade. This makes them ideally suited to gardens in established neighborhoods with large trees where full sun is becoming a precious commodity.

There is no doubt that the yellow flowered varieties show up best in the landscape from a distance and they are further enhanced by a contrasting background such as evergreen trees. I prefer to place them where the prevailing winds will carry the fragrance across areas frequented in winter such as walkways and doorways. Those who wish to have the orange and red varieties in the landscape should be aware that they are best planted to be viewed close up for they are much less effective from a distance and on dull days tend to blend with the ubiquitous browns of the winter landscape.

When cutting for indoors you will want to have all the colors since they compliment each other in an arrangement. Madame de Belder encouraged the students to cut some stems for our rooms but cautioned, even pleaded with us, not to cut large branches (pencil size was OK) since these wounds never seem to heal. She showed us numerous examples where a strip of dead bark had resulted, running down the trunk below such a cut. While this does not kill the plant it seems that it contributes to its eventual decline.

I will never forget the beauty and fragrance of the mass plantings of these early flowering shrubs at the Arboretum Kalmthout or the enthusiasm of the people who have selected them for us to enjoy. It was a pleasure to work with and know the de Belders, and for nostalgic reasons I want to have the whole de Belder family in my garden. And I can say without reservation that these witch hazels are among the best for any Delaware Valley garden.

Sources

Gossler Farm Nursery
1200 Weaver Road
Springfield, Oregon 97477
Phone: 503-746-3922

Check with your better area nurseries

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Charles Cresson spent several years studying horticulture in England and Belgium. He is now horticulturist at Meadowbrook Farm and is co-authoring a book with Jeff Ball about flower gardening to be published by Rodale Press this fall. Cresson gardens in Swarthmore.



photo by Mary Pat Kane Photographed at H T McDoogal's Restaurant on Headhouse Square.

Some of the wines produced from grapes grown in Pennsylvania.

Making Wine in Pennsylvania TODAY

It's been a "state" secret whispered among wine afficionados for years, but the wines of Pennsylvania are finally going public. They're showing up on many restaurants' wine lists and being served in wine lovers' households – with pride.

by Deborah Scoblionkov

It started in 1968 when the Limited Winery Act was passed and commercial wine production was permitted (using local grapes) in Pennsylvania for the first time since Prohibition. Small boutique wineries have been springing up across the state ever since. In 1984, 323,655 gallons of local wine were produced in more than 40 wineries. Last year, winemakers were anticipating a bumper crop.

"My harvest was up about 20% from 1984," says winemaker Dick Naylor, who picked grapes through October. "It was a heavy crop because the rain around Labor Day made the grapes bigger and jucier." Naylor, who is also president of the Pennsylvania Wine Association, adds that wineries throughout the state are enjoying "a healthy growth rate."

Naylor is fond of calling the local cottage wine industry a "sleeping giant," implying that the world will take notice when it is roused from its slumber. Indeed, the potential is there.

Local winemakers are doing a superb job with this grape, and at the 1985 Pennsylvania Wine Competition, five out of 13 gold medal winners were Seyval Blancs.

"Our growing year is similar to the Champagne or Burgundy wine regions of France, in terms of temperature, rain and elevation. But," Naylor adds, "they never get the severe winters we have here." Our harsh winters severely limit the variety of grapes that local wine wizards can grow.

labrusca

Many local wines are made from the winter hardy native American *labrusca* grape varieties, like the Concord, Niagara, Cayuga and Catawba grapes, which thrive in our region and inspired Leif Ericson to call the New World "Vineland." Because the indigenous grapes are easy to grow (and easy on the purse as well), they initially dominated the young East Coast wine industry. At one time, it was even thought that these were the only grapes that could be grown in the East.

They have an aggressive flavor, and produce a sweet, grapey wine, with a long and pungent aftertaste. Sipping a wine made from native grapes has been likened to drinking liquid jelly (indeed, these are the grapes used for jams, jellies and grape



photo by L. Wilbur Zimmerman

Chardonnay grapes at Stargazer Vineyard in Chester County.

juice.) *Only* on the East Coast of America are *labrusca* grapes used for wine, and a loyal following has developed, particularly in rural areas, of people who prefer these wines to, say, the bone dry taste of a young Bordeaux wine.

vinifera

The grapes used for wine-making in the rest of the world, the delicate and sophisticated European *vinifera* varieties, such as Chardonnay, Petite Sirah, Cabernet Sauvignon and Johannisberg Riesling, are the "prima donnas" of vineyards. They require constant attention and laborious tending to raise them to fruition, and even then, their yield is less than a third of what our native grapes deliver. *Vinifera* grapevines are quite sensitive to cold weather and many did not survive the freeze of last January when temperatures dropped below zero during the critical budding stage. Although the vines are grafted onto American rootstock to protect against the dreaded phylloxera, they are still extremely susceptible to a variety of fungi and parasites, which our hardy native species resist or are immune to. The most serious problem in the Northeast region is a virus called "crown gall," which forms cankers around the trunk and essentially strangles the vine, cutting off the plant's flow of nutrients.

"There is no cure for crown gall," laments Naylor. "We just have to select carefully well-drained areas to plant the *vinifera* vines." Even then, it is simply a matter of time (perhaps 10 to 12 years) before the vine ultimately succumbs to the disease.

For these reasons, the *vinifera* are not planted on a large scale. But, ah, the wines produced from these fussy foreigners are so much more subtle and elegant in character and taste than the "foxy" native wines. Allegro Vineyards in Brogue, Pa., and Presque Isle Wine Cellars in Northeast, Pa. (near Lake Erie) are two wineries that have proved Pennsylvania *can* produce wines to match French or California quality. Alas, such "pampering" has its price – wines from these grapes are expensive, commanding nearly double or triple the price of all-American grape wines.

wines with a french accent

In between these two extremes are the French-American hybrid grapes that combine the sturdy disease-resistance of native vines with the restrained taste and breeding of European grapes. They have continental sounding names like Seyval Blanc, Vidal Blanc, Baco Noir, Chancellor and Chambourcin; and they produce wines with a distinct French accent.

They are the mainstay and the future of the East Coast wine industry. Most Pennsylvania wineries are now concentrating their efforts on growing these grape varieties. The wines can be utterly delightful, and they appeal to a broad public, as well as being reasonably priced.

Perhaps the most successful hybrid grape grown in Pennsylvania is the Seyval Blanc. Its fruity, yet slightly tart, flavor makes a white wine that can be compared to a generic chablis. Local winemakers are doing a superb job with this grape, and at the 1985 Pennsylvania Wine Competition, five out of 13 gold medal winners were Seyval Blancs.

Another widely used white hybrid grape, Vidal Blanc, can be made in a variety of styles, from light, dry and crisp like a German Mosel to a sweet, "late harvest" dessert wine when left on the vine until late fall to increase the natural sugar levels of the grapes.

In general, red wines made from hybrid grapes have not achieved the same consistent, high quality as the white hybrid wines. But there are always exceptions and, luckily, you can usually taste the wines (at the winery) before buying them. Try a Baco Noir, a Chambourcin or a Chancellor, as well as a Marechal Foch. One is bound to catch your fancy.

proprietor's blends

Some the of best wines made in Pennsylvania are concoctions made from a mixture of differnt grapes – "proprietor's blends."

continued

photo by L. Wilbur Zimmerman



Harvesting grapes at Buckingham Vineyards in Bucks County before bulk containers pick them up.

They are labeled with names chosen by the owners, which can refer to a region (Conestoga's "Chateau Latort Rhine Wine"), a style (Nissley's "Classic White"), a person (Conneaut's "Princess Snowater") or simply a whim.

In addition, many wineries offer a selection of fruit and specialty wines, such as Apfelwein (popular in Pennsylvania Dutch country near Lancaster), May wines (grape wine flavored with herbs) and Sangria (flavored with fruit). A few ambitious winemakers are even experimenting with sparkling wines (fermented twice); one has even come up with a sparkling plum wine called "Plum Crazy." The fruit wines tend to be on the sweet side, but they make a lovely dessert beverage that can recapture the perfume and spirit of your favorite fruit long after its season has passed. One of the finest is Tucquan's "Peachy" – peach wine.

Until recently, these wines were only available on the wineries' premises, which encourage many pleasant Sunday excursions in the country (Sunday sales are legal in the keystone state's wineries). But it could be rather inconvenient if, say, you lived in Philadelphia and had a sudden yearning for that lovely wine you tasted up in the northwest corner of Pennsylvania last spring. In the past few years, however, legislation has loosened the restrictions on the local wine flow by permitting wines to be shipped via UPS and allowing wineries to open up to three off-premise retail outlets.

In the past few years legislation has loosened the restrictions on the local wine flow by permitting wines to be shipped via UPS and allowing wineries to open up to three off-premise retail outlets.

While Pennsylvania's wine industry has gotten off to a relatively late start compared to California or France, research carried out by the Pennsylvania State University's agricultural department and recent advances in viticulture are helping local grape-growers to improve the quality of local grapes, that in turn make for superior wine. Microclimatic conditions, which explain why a grape variety grows better in one area than it does down the street, are being considered when planting vines; soils are being treated against common rots and fungi *before* the problems begin; and information is being shared through programs organized in cooperation with the Pennsylvania Wine Association.

It's paying off.

"Pennsylvania wines are as good as any wines made in the United States," declares Naylor. So, raise your glass to the 1985 harvest; it's promising to be a very good year.

To receive a list of Pennsylvania wineries, complete with hours, tour schedules and a map, write to the Pennsylvania Wine Association, c/o Naylor Wine Cellars, R.D. #2, Box 85, York, PA 17403

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Deborah Scoblionkov writes about food and wine for various local magazines. She was administator at L'ecole de Vin (the wine tasting school in Philadelphia) and has tasted a lot of wine in Europe and North Africa. She has written a chapter for *America's Best Restaurants* (Times Books, 1986).



photo by L. Wilbur Zimmerman

French hybrids ready to harvest at Buckingham.

Making Wine in Pennsylvania

THE PAST

by L. Wilbur Zimmerman

Lord Delaware, the Governor of Virginia, is credited with being the first person to import grapes from Europe for winemaking in 1619. In 1684 William Penn planted vineyards on what is now known as Lemon Hill in Fairmount Park. The first commercial winery in America was established on property belonging to William Penn's son-in-law at Springettsbury just down the river from Conshohocken. This winery was run by the French vintner, Pierre Legaux, a friend of the Marquis de Lafayette. It was a private stock corporation called The Pennsylvania Vine Company. Many prominent Americans of the day bought stock, including such men as Alexander Hamilton and Aaron Burr. The most successful grape was the Red Alexander grape which was introduced by Legaux, himself. This grape was so highly thought of that Thomas Jefferson, who was a knowledgeable oenologist, considered it his best grape for winemaking.

Jefferson tried many European varieties of grapes at Monticello but after 30 years gave up trying to cultivate *Vitis vinifera*. However, the Red Alexander grape per-

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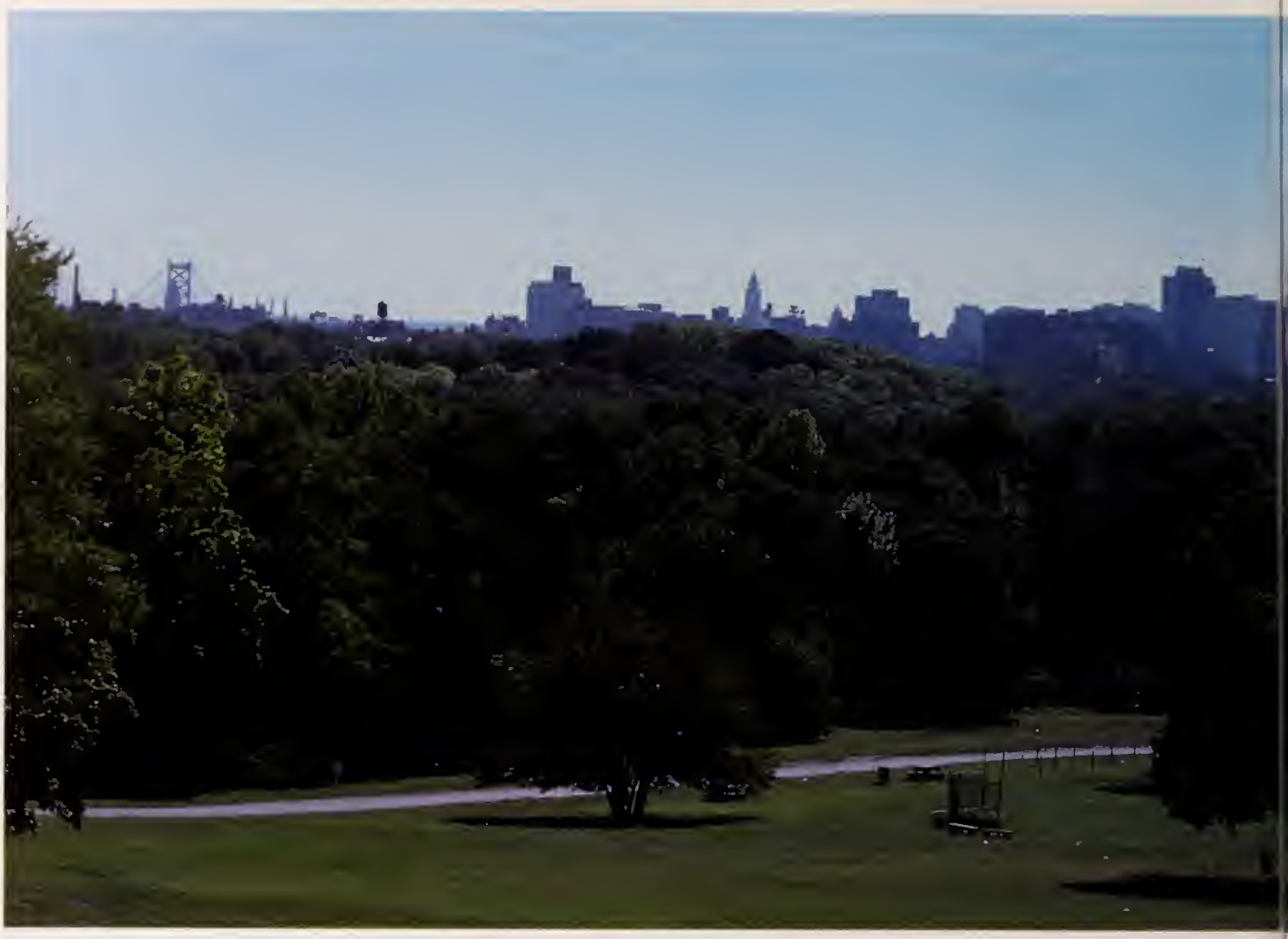


photo by L. Wilbur Zimmerman

Philadelphia skyline from Belmont Plateau overlooking Lemon Hill where William Penn's vineyard was planted in 1684.

sisted. It was a hybrid between a wild native grape and a *vinifera* grape. Despite this one successful grape, the Spring Mill winery failed about the time of the War of 1812. But scions from this vine stock were shipped to Kentucky, Indiana and Ohio, where in Cincinnati, the wine industry first really gained its foothold in Eastern United States.

The earliest wines in the new world were made between 1562 and 1564 by the first French Huguenots to settle in North America. The wine was made from a wild grape known as the scuppernong that grows in the southeastern coastal areas of the United States. It certainly did not suit the French palate. The next 300 or more years saw repeated attempts to make wine from the *labrusca* grape of which there are many species native to Eastern United States.

It is from the *labrusca* grapes that such well known varieties as the Concord and Catawba were derived. But the wine from *labrusca* grapes does not taste the same as that from *vinifera* grapes, which the colonists had been accustomed to in their former homelands. The flavor of *labrusca,* which is so pronounced, is called "foxy." It is derived from the common name fox grapes. This really means that grape juice and wine made from these grapes carries over a more pronounced fruit flavor and is quite a bit sweeter than wine from *vinifera* grapes.

Millions of Eastern Americans of later generations who never knew the taste of European wines liked the flavor of *labrusca,* but sophisticated European travelers and European visitors did not like it.

The reason for the lack of success in growing *Vitis vinifera,* which includes such varieties as Cabernet, Chardonnay and Reisling, was twofold. First, the soil here contained a plant louse that caused the disease phylloxera, which destroyed *vinifera* vines. *Labrusca,* the natives vines, were immune to the ravages of this disease. The East Coast's humid weather and severe winter climate was another big obstacle to growing *vinifera*. Californians, with their more equable climate, have been able to cultivate the *vinifera* grape and produce wines conceded to be comparable with European wines.

Of course, there is still a thriving industry with *labrusca* and wine made of a mix of *labrusca* or *vinifera* or vice-versa, which have largely gotten rid of the foxy taste, and more nearly resemble the flavor and aroma of European wines.

In the history of the first 100 years of the Pennsylvania Horticultural Society 1827 - 1927, much emphasis was placed on both table grapes, grapes for winemaking and the hybridization of grapes.

Grapes were an important part of the first public exhibition held by the Pennsylvania Horticultural Society in the Masonic Hall, in June 1829, with the foreign grapes more popular than the native ones.

Grapes continued to be an important part at public exhibits and at some meetings in the Philadelphia area. In 1843, for example, Dr. A. W. Mitchell staged 33 varieties of foreign grapes that he had grown under glass. Again in 1845 that were 38 different exhibitors of grapes.



Today, on the the East Coast wine lovers continue to discuss the comparative merits of wine from *Vitis labrusca* and *Vitis vinifera*. This is probably not so anywhere else since Eastern United States probably is the only place where *Vitis labrusca* is used in winemaking.

Some people probably deride or would denounce any one who would tolerate the foxy concord grape juice taste, so characteristic of wines made entirely from *labrusca* grapes.

We should point out to them that they are probably outnumbered here by the millions of East Coast Americans and Canadians who prefer the "real" grape taste. Those who were raised to know this taste first and became familiar with it seem to prefer *labrusca* over the classic *vinifera*, to which the rest of the world has been conditioned for at least the past 4000 years.

●

L. Wilbur Zimmerman served as chair of the PHS Council from 1976-80 and Flower Show chair in 1974 and '75. He is emeritus judge for the American Orchid Society and serves on the PHS Publications and Library committees.



The pavilion on top of Lemon Hill overlooks the Schuylkill; this is the approximate site of William Penn's vineyard in 1684.

photo by L. Wilbur Zimmerman



photo by Sara Cedar-Miller, Central Park Conservancy

The Point in Central Park after restoration.

Replanting the Trees and Shrubs of *Olmstead and Vaux's Designs Still*

by Geraldine Weinstein

Central Park was designed and built in 1858 during an age of botanical exploration. Throughout its 840 acres the Park's designers, Frederick Law Olmsted and Calvert Vaux, used native plants as well as species from Europe and Asia to create through plant combinations, a broad spectrum of landscapes, environments, and ecosystems. While majorstory trees such as elms, oaks, maples and beeches outlined the Park's design, it was the middle tier of shrubs and shrub-like understory trees that gave Central Park the depth, texture and character of a naturalistic landscape. Planted throughout woodlands, at the edge of meadows and on the banks of streams and ponds, extensive shrub and understory planting created environments rich in botanical and ecological diversity. *Leucothoe catesbei, Mahonia aquifolium,* and a myriad of Rhododendron species brought bold texture and deep color to the landscape, while shrubs such as *Caragana frutex* and *Cytisus scoparius* provided their fine-textured counterpart.

Fruits from the many species of *Cotoneaster, Lonicera,* and *Viburnum* also wove color through the landscape while providing food for wildlife. The diversity of the Park's colors was further heightened by the autumn foliage of *Rhus copallina, Euonymus alata,* and *Hydrangea quercifolia,* and the winter twig color of *Kerria japonica, Cornus sericea,* and *Vaccinium angustifolium.* Standing before the multilevel landscapes Olmsted and Vaux created throughout the Park, visitors and Park users enjoyed eye-level encounters with the varying forms, textures and colors



Central Park: *Work*

characterizing the plant world, while wildlife found an abundance of food, cover and nesting sites. The ways in which Olmsted and Vaux used shrubs and understory trees to give a specific, aesthetic or ecological character to a site or to complement an already existing landscape feature, provide lessons in ecology and design applicable today to urban greenspaces, landscaped parks and residential gardens.

The communities of shrubs and understory trees now being restored were chosen to instill again, where possible, the visual and ecololgical qualities Olmsted and Vaux intended. They are thriving in Central Park and therefore are potentially viable in other designed and "built" urban landscapes. They are halting erosion on the Park's slopes, stabilizing its streambanks and lakeshores, creating improved habitats for wildlife, deterring foot traffic and intensvie use from ecologically sensitive areas, and delighting Park visitors and users with their flowers, fruits and autumn color. These plant associations can be woven into both small and large scale public or residential naturalistic landscapes and environments for similar ecological and aesthetic purposes.

Lists of shrubs and understory trees simultaneously tolerant of restored and compacted soils, wind tunneling, flooding or drought, reflected heat from roadways, limited rooting space and salt pollution are hard to find, or are not yet even compiled.

choosing the right plants to restore the understory plantings

The plant groupings described here began entering Central Park in 1980, the year landscape restoration efforts began. At that time, few vestiges of understory planting remained. Depleted resources, misguided attempts at landscape management, insufficient maintenance and the impact of millions of Park users were the major culprits. During a period of at least 50-60 years Central Park lost its character of a naturalistic landscape becoming more dominated by the tall verticals of major-story trees and the sharp horizontal of the groundplane. Diversity in habitats for wildlife and in experiences for people was sharply curtailed. Recognizing the essential role of shrubs and understory trees in the Park's design and in its ecology, the Central Park Conservancy and the New York City Department of Parks and Recreation began replanting in the spring of 1980. During the first five years of Central Park's restoration, nearly 30,000 shrubs and understory trees became part of the landscape. Significantly, current planting objectives echo those of Olmsted and Vaux. The landscape problems that challenged the Park's designers over a century ago, still confront, sometimes even confound, us today: soil erosion; disturbed, compacted soils; chemical pollution; circulation problems; siltation of waterbodies; and winter interest in the landscape.

Replanting Central Park's shrubs and understory trees can also be called the "Great Plant Search" because to meet the aesthetic and ecological goals established, we had to choose the right plants. Plant lists targeting specific environments – sun or shade, moisture or dryness – were in plentiful supply. Lists of shrubs and understory trees, simultaneously tolerant of restored and compacted soils, wind tunneling, flooding or drought, reflected heat from roadways, limited rooting space and salt pollution are hard to find, or are not yet even compiled. These environmental problems do exist, often in combination, and simultaneously on a site where a landscape is designed and "built." The effect of these environmental stresses on plant health has often been unpredictable. During the past two to three years we have been tracking shrubs and understory trees in terms of growth rate, susceptibility to vandalism, and survival, and relating the information collected to site conditions and types of envrionmental stress. We have, moreover, been looking at the understory of Cental Park in all seasons, monitoring erosion and wildlife and listening to the reactions of many Park visitors and users.

In this way we have been identifying successful plants and determining successful plant communities. With equal vigilance we hunt out plant failures to avoid their impact on the Park's appearance and its ecology and to eliminate clostly management errors. We are especially interested in knowing if a plant fulfills the purpose for which it was planted. Does it live up to its reputation when planted in an urban greenspace where public scrutiny and environmental stress are a constant? Could Rhododendrons actually provide winter interest? Would grey stem dogwood successfully halt erosion on rocky shallow slopes? Could sweet pepperbush stabilize stream banks in intensively used areas?

continued



photo by Sara Cedar-Miller, Central Park Conservancy

Blueberry shrubs *(Vaccinium corymbosum)* along Belvedere Lake in Central Park.

thriving plants and combinations

The following plants not only survive, but thrive and make an invaluable contribution to the everyday life of Central Park. It is the plant community comprising an ecosystem in itself rather than the individual plant that is becoming the aesthetic and ecological anchor of the landscape in Central Park. Woven frequently into the Park's landscape, these plant communities by their resiliency convey a coherent and powerful ecological and visual message. Each of the communities in the following discussion are comprised of individual plants with approximately the same above and below ground growing requirements, and a similar ability to adapt to specific kinds of environmental stress. In terms of growth, one plant does not overpower, repress or smother another; environmental harmony seems the keynote. These plant species and the communities they form take in stride the 4,000,000 visitors who make 14,000,000 visits per year.

***Hamamelis virginiana/Rhodotypos scandens/Euonymus alata* 'Compacta'**

Hamamelis virginiana (witch hazel) is the principal understory tree used. It's tolerant of severe exposure, reflected heat, drought, flooding, and salt damage at many sites in the Park. Growing at an average rate of 6 in. per year and with a wide spreading habit, it contrasts effectively with the many verticals of the Park's majorstory trees. Placed near the top of a shaded slope, or throughout a woodland planting, it breaks the force of the wind and rain, and provides a buffer for less adaptable plants on the site. Its yellow flowers in fall are an additional asset.

Rhodotypos scandens (jetbead) is a Park favorite, evoking admiration because it tolerates almost anything. With minimal maintenance, it grows a reliable 6 in. per year. Without maintenance, it still survives, tolerating compacted or disturbed soils, drought and reflected heat at several sites. In the foreground of majorstory trees or on a lightly shaded lakeshore planting, its white flowers have lasted nearly four weeks. The black bead-like berries that follow are as attractive to wildlife as to people. Similar to witch hazel, its foliage in late August echoes its bright green color of spring. Its mound-like habit, which protects the soil from eroding, gracefully spreads out into open space and not over neighboring plants. It's been especially rewarding to see jetbead seeds germinate in leaf litter or wood chip mulch. Jetbead is an anchor in several plant communities and on many landscape sites in Central Park. It is one plant species comfortable in a shrub border, along a woodland edge, or as part of a more formal entrance planting.

Although somewhat stiffer in habit, *Euonymus alata* 'Compacta' (winged euonymus) with its dense and compact form, also protects the soil from pounding during heavy rainfall. Thickly planted, its mass and its density deter foot traffic. In the autumn, the broad spatial effect of its pink-rose foliage provides additional depth and interest to a landscape. It survives deep shade in Central Park, growing as on other sites about 6 in. per year; however, it does not look happy about it and is best not used in and among large majorstory trees.

Viburnum sieboldii/Clethra alnifolia/ Rhodotypos scandens

Viburnum sieboldii (Siebold viburnum) and *Viburnum prunifolium* (black haw viburnum) share the honors as the most successful *Viburnum* species in the Park. *Viburnum sieboldii* is a personal favorite because its lustrous deep green foliage is a welcome sight during hot and humid summer days. It has adapted to compacted soils, heat and drought stress, wind tunneling and reflected heat from pavements. Contrasting with the deep green foliage its clusters of red fruit provide great accents of autumn color. Its vigorous growth of 12 in. per year and the bold impression of its foliage provide a strong



photo by Sara Cedar-Miller, Central Park Conservancy

Fifth Avenue planting of *Acanthopanax sieboldianus*

background for neighboring plants.

Under a light canopy, *Clethra alnifolia* (sweet pepperbush) is now, after an uncertain period of establishment, an integral part of the Park's naturalistic landscape. Its loose and graceful growth habit, fragrant flowers in July, and its identification with native landscapes in the northeast have encouraged its planting on several sites. With appropriate irrigation and mulching, sweet pepperbush now withstands heat, drought, and the impact of millions of Park users. While during its first two post-planting years it merely survived, it's been growing at least 6 in. annually over the last two years. It adapts well to disturbed nutrient-poor and compacted soils when a deep organic mulch covers its rooting environment.

Spreading out rather than up, jetbead provides a welcome contrast to *Viburnum sieboldii* and *Clethra alnifolia*.

Cornus racemosa/Vaccinium corymbosum, Myrica pensylvanica

The description of these plants is combined since for the most part, they possess identical strengths.

Because Central Park was built on rocky, barren land, the lack of deep fertile soil is a common problem. Often site modification is expensive, impractical and without long-term effect. All three – *Cornus racemosa* (grey stem dogwood), *Vaccinium corymbosum* (blueberry) and *Myrica pensylvanica* (bayberry) take these limitations in stride. They thrive on rocky, fully exposed sites, yet are tolerant of very light shade as well. They form an especially effective plant community on the banks of lakes and ponds, or on a rocky exposed peninsula or in an open meadow. All three are an invaluable source of food for wildlife. Greystem dogwood and blueberry provide brilliant autumn color. The visual impact of blueberry goes on through the winter as its red stems bring continued color and interest to the landscape.

Acanthopanax sieboldianus

The five-leaf aralia prevents soil from eroding by virtually covering it with its mound-like and wide spreading habit. It is easily established and a very vigorous grower, so vigorous that it must be considered a plant community of one. In Central Park on a wide variety of sites and microclimates, *Acanthopanax* grows 1-2 ft., sometimes 3 ft. per year under less than favorable conditions. At one site the soil depth is less than 9 in. and at another, it has been introduced into a closed canopy forest of majorstory trees 24-36 in. in diameter. Both its density and impenetrable appearance, more than its abundance of thorns, efficiently deter foot traffic. On a shaded, rocky slope, *Acanthopanax* will provide a dense, yet gracefully wide spreading mound of fine-textured foliage. It is a welcome contrast to bolder forms and foliage in the background.

Seafoam and Fairy Roses

While we have often used barberry to control circulation patterns, we are finding that the shrub-like Seafoam and Fairy roses even more effectively control soil erosion and deter foot traffic. Interplanted on an exposed and rocky slope in the Park, both Fairy and Seafoam have grown in a rambling and rampant fashion, forming thick and impenetrable mounds covered with flowers for two to three months. The landscape conveys to the Park visitor a softer and more positive impression than when barberry is used. In and among the thick mound-like plantings several species of birds take cover and forage. After one season of growth, both cultivars so densely and thickly cover an area that vandalism and erosion are no longer a problem. Their rampant and vigorous growth create a microclimate where the soil surface is shaded, affording them a cool, moist root run. Insect damage from mites and lacebug is present, but it's not a noticeable problem in view of the annual growth of 1-2 ft. per year. The floral display would please Olmsted and Vaux. They wanted flowers in the Park to be seen not as individuals, but amidst masses of lush and vigorous growth.

When plants are used in combinations adapted to specific site conditions, the community they form reflects nature's scheme. The plant community strengthens visually and ecologically each plant within it and the surrounding landscape as well. The Great Plant/Plant Community search continues as we track the growth and evaluate the visual and ecological contribution of other species currently being planted.

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Geraldine Weinstein was director of Horticulture for Central Park for five years. From February 1984 to February 1986 she was director of Horticulture for New York City, She is currently a Loeb Fellow at the Harvard Graduate School of Design.



GARDENERS vs. gardeners

by Walter Chandoha

There are **GARDENERS** and there are gardeners. **GARDENERS** grow the biggest and the best of everything. They are the first to know about the latest methods and varieties, and they are the first to harvest anything. Then there are the other gardeners. They garden to unwind, to relax, to get rid of their stress and tension. They like the exercise, they like to see things grow and they couldn't care less about the proper or latest techniques.

Gardeners are perennial beginners who may own one book on gardening and slavishly follow the words of that one author. Some never even bother to read a book – their sole source of information comes from instructions on seed packets.

Despite their lack of formal information these men and women are happy with their results. They are always amazed that their seeds "come up," grow, and eventually yield a respectable harvest and/or colorful flowers.

They plant their entire garden in one or two weekends in mid-spring and diligently keep down the weeds until more pressing summer activities demand their time – golf, tennis, camping, house chores, weekends at the seashore or mountains. After one or two of these non-gardening weekends back to back with a couple of rainy weekends, the weeds get a head start. By mid-July the vegetable garden is a jungle. About the only visible vegetables are the Big Boy tomatoes tied to three-foot stakes that should have been six-foot poles in the first place.

But if the gardens of gardeners are not full of weeds they are amazingly productive. Sometimes too productive. They harvest bushels of beans for a week or two then no more until next year. Comes June, their lettuce crop is phenomenal but they have none to go with their tomatoes in September. They get beautiful yellow flowers on their bolted, spring-planted Chinese cabbage but they never make a timely fall planting. They plant a 20-foot row of zucchini where two plants would have been enough.

Then there are **GARDENERS.** These are the mavens of gardening. They subscribe to all the gardening magazines and have extensive horticultural libraries. They are active in garden clubs and societies and are on first name terms with their county ag agent. They know all about pH, NPK, intercropping and succession planting, checking, double digging, layering, espalier, fusarium and finocchio – you name it, they know it or grow it.

Here in northwest NJ, a borderline hardiness Zone 5-6, the target date for picking the first red, ripe tomato is the Fourth of July. Exactly twice in 30 years of backyard gardening have I had tomatoes on July 4th – just twice.

GARDENERS can be distinguished from gardeners by their attitudes toward a failed crop. When seeds don't "come up" gardeners blame themselves and assume they did something wrong. When **GARDENERS** plant seeds that fail to germinate they blame the seed company. They immediately write to the supplier complaining, demanding a refund or replacement.

Gardeners grow lettuce, tomatoes and beans, but not **GARDENERS.** They grow Oak Leaf and Prizehead, Floramerica and Early Cascade, Romano, Blue Lake and Dandy. Gardeners never run a soil test. **GARDENERS** always do, and they never walk on their raised beds. **GARDENERS** rub their garden tool handles with linseed oil to preserve them and they *never*, ever leave a rake or hoe out in the rain.

GARDENERS are always the first to harvest anything – especially tomatoes. Here in northwest NJ, a borderline hardiness Zone 5-6, the target date for picking the first red, ripe tomato is the Fourth of July. Exactly twice in 30 years of backyard gardening have I had tomatoes on July 4th – just twice. With the erratic weather of last year I was lucky to have enough for a meal on August 4th.

So intense is this first ripe tomato rivalry that more than one **GARDENER** has purchased nursery-grown tomato plants, not only in flower but already laden with marble size fruit. When there are no witnesses – not even family members – the sneaky **GARDENER** surreptitiously sets out the bought tomato plants among those home grown.

It was only by chance that I learned that some of my **GARDENER** friends were using this lowly trick. In a conversation with our local nurseryman he casually mentioned that "Mr. **GARDENER** was in here last week and bought the last six ready-to-bear tomato plants." No wonder the nursery was out of stock when I tried to buy a couple of them.

Seed starting is another area where **GARDENERS** excel. Gardeners are too timid or don't want to bother to start their own flower or vegetable plants from seeds. But **GARDENERS** wouldn't be caught dead buying nursery started seedlings, and start most of their own at home. Early in February all of their sunny windowsills are covered with an assortment of seedlings – lettuce, leek, the cabbage family, onions, maybe even beets, kohlrabi, and Swiss chard. They start all of their bedding annuals and many of their perennials; they even start their own geraniums from seed. More affluent **GARDENERS** have heated greenhouses for seed-starting.

GARDENERS also know what books mean when they say something can be planted early in the spring "as soon as the ground can be worked." It was never clear to me exactly what this meant until recently when I read somewhere, and I'm paraphrasing, "Walk across the area to be planted; if soil sticks to your shoes it's too early to plant." Now I walk in the garden

continued

◄ The gardener plants tomatoes; the GARDENER plants Floramerica, Roman and Sweet 100.



photos by Walter Chandoha

Sometimes the GARDENER, who looks down his nose at store bought seedlings, is not above slipping into a nursery to buy some so he can be first with tomatoes on the Fourth of July.

before planting.

When which plants can go out in the garden or when seeds can be sown is common knowledge to **GARDENERS.** They plant leafy green stuff early in the spring and again in mid-summer for a fall crop. Eggplant, pepper and tomato seedlings are planted only when the soil is warm. They harvest kale, collards, and Brussels sprouts from under the snow for Christmas dinner and their root cellars are full of harvested crops to eat all winter.

Even with their stashed harvest, winter is a bad time for **GARDENERS.** They get cabin fever when all outdoor gardening ceases. There's a brief recovery when garden catalogs arrive but after seeds are ordered they have a bad relapse.

Anticipating their malaise and to be ready to plant "as soon as the ground can be worked" early in the spring, **GARDENERS** prepare their soil in the fall. With huge tillers they churn up their garden after adding proper amounts of humus, lime and fertilizer. Then they smugly wait for the rains and snows of winter to make the tilth of their soil even more tilthy.

After this last act of outdoor gardening they withdraw to their firesides to await spring. The wait is interminable, and as each week slowly goes by, their cabin fever increases. One of the symptoms of the disease is incessant babbling about gardening. It's their one important topic of conversation. During winter parties they always manage to steer the talk to gardening. They seque from interesting topics like sex, politics and religion by announcing that they no longer have to dig their garden with a spade – they now have this monster tiller that can prepare their garden for planting in half a day. They're lavish with their condolences to gardeners who still have to break their backs using shovels and mattocks.

Because I write about gardening I hesitate to get into these one-sided discussions lest I be branded a big-mouth-know-it-all. But invariably, I get drawn into a conversation with a **GARDENER** who has recently purchased one of those huge 8 HP rototillers that he can operate with one hand. (Why does the machine have two handles, I'm tempted to ask.) Finally, when he asks me if I'm still digging with a shovel or a spading fork, I'm obliged to tell him the truth – that I dig my garden with a 50-inch tiller attached to the power take-off on my 4-wheel drive, 25 HP diesel tractor. After hearing this the verbal **GARDENER** suddenly becomes strangely silent.

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A free-lance writer/photographer for over 30 years. Walter Chandoha's illustrated gardening stories have appeared in the *New York Times, Family Circle, Organic Gardening, Ladies Home Journal, Woman's Day, Horticulture, House & Garden, Family Food Garden, Flower & Garden.* In 1982 he won one of two of the National Garden Bureau Awards. Some readers may know Chandoha for his animal photographs, especially his cat and dog photographs that have been used to illustrate pet food packages and advertising, books and magazines, and over 200 magazine covers. He also provided photos and text for 1986 (and 1985) *The Gardener's Calendar.*

Sharing Your Garden With Others

by Adolph Rosengarten



photo by Howard Holden

An autumn scene at the Pond at Chanticleer.

If you have an attractive garden, you might be inspired to share it with other gardeners. The question is how to do it and yet retain some peace and quiet. Let me give you a few suggestions from my own experiences.

First, however, I'll describe my own garden. Comprising some 30 acres on the Main Line of suburban Philadelphia, it falls into Zone 6 for plant hardiness. It is a unit of two main houses: Chanticleer, where I was brought up, and Minder House, where I have lived for the last 50 years. Chanticleer has a formal garden and Minder House an amenity one. There are other buildings, such as cottages for staff, tool sheds, an enlarged stable for the mechanical equipment, and on its side a small lean-to greenhouse and a slat-house.

A century ago the property was a small farm, which must have been worked with difficulty, for the ground undulates. Now the sheds and fields are gone, replaced during the last 70 years by lawns, flower and vegetable gardens, an embryonic meadow garden, a wild flower garden, a rock garden and a stream-fed pond. On the north two groves, one of native oak, ash, poplar and walnut and the other of white pine and hemlock, serve as a screen. On the south a trimmed hemlock hedge marks the boundary.

A century later, when the Pennsylvania Horticultural Society, as its part in the Bicentennial, put on a series of symposia, we were honored when Chanticleer was chosen as the site for the fifth in the series.

The topic of the fifth symposium was "The House and the Tools of Horticulture." It followed a dinner on the lawn, which in turn followed tours of the property. Many symposium participants joined the tours – despite the heat of a Saturday in mid-August – and many later wrote complimentary letters about the gardens. This brought home to us that sharing our enjoyment of the garden with others has its rewards.

Thus 1976 was a turning point and thereafter our predilection for the private life, gradually but within limits, declined. We began to receive numerous requests to tour Chanticleer. We do no "marketing" believing that most people come voluntarily to learn about plants, landscape design and good gardening practice; others to obtain the emotional satisfaction one gets from looking at a good painting, while the optimists hope for both.

Visitors start from Chanticleer and are guided by a gardener on a tour that takes about two hours, depending on how much discussion is stimulated. A group not exceeding 30 persons is the ideal. Individu-

continued

als or very small groups are politely turned away. We recommend they join the Pennsylvania Horticultural Society to take advantage of the garden tours arranged under its auspices. To sustain maintenance, we restrict tours to one a week, although we occasionally make exceptions. Advance appointments, confirmed in writing, are required and no fee is charged.

Between April and October 1984, 23 visits were logged at Chanticleer and Minder House. The groups fall into the following categories: seven classes from horticultural or landscape architectural schools, three guide groups from nearby arboreta and ten garden clubs. Also one was made during a seminar on judging given by a section of the Garden Club of America and another by the horticulturally minded spouses of the VIPs attending an International Monetary Conference in Philadelphia. Finally we opened Chanticleer on a Sunday afternoon to members of the Pennsylvania Horticultural Society and welcomed over 300 visitors that day.

We feel we've gained much from these visits. The gardeners take pride in the fact that their work is admired by people who value good gardening practices, and those who act as guides enjoy sharing their knowledge with interested guests.

Tours also help in another important way. At the end of many we offer a glass of wine as a cure for "outdoor museum feet," and if the group is not too large distribute the following questionnaire. I have recorded the 159 responses received in 1984:

I. Is this your first visit to Chanticleer?
Yes 126 No 33

II. What did you like best about Chanticleer?

a. Espaliers	94
b. Groundcovers	50
c. Roses	26
d. Flower Gardens	40
e. Vistas	107
f. Vegetable Garden	38
g. Wildflowers	64
h. Rock Garden	40
i. Other	

III. Do you have any suggestions for improvement?

Some of the replies to question III were rewarding. For example, in a bed with a difficult microclimate, where skimmia and mountain cranberry collapsed, ferns were suggested. And I especially welcomed the apposite comment of a woman who volunteered, "I liked the planting for it was not obtrusive." The answers to question II helped us to focus on weaknesses needing attention and indicated areas on which to build on existing strength. A good garden is never static.

In November 1985 Adolph G. Rosengarten, Jr. received the Certificate of Merit at the Pennsylvania Horticultural Society's Annual Meeting. The citation read in part: "A love of horticulture and gardening has been with you for many years, and the Society applauds you for your generosity in sharing this love with others."

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Adolph Rosengarten, Jr. served as a member of PHS's Council; participated in the President's Council of the American Horticultural Society and as a member-at-large of the Garden Club of America



photo by Howard Holden

Vista at Bell's Run

THINKING SMALL:

Miniature Arrangements at the Philadelphia Flower Show

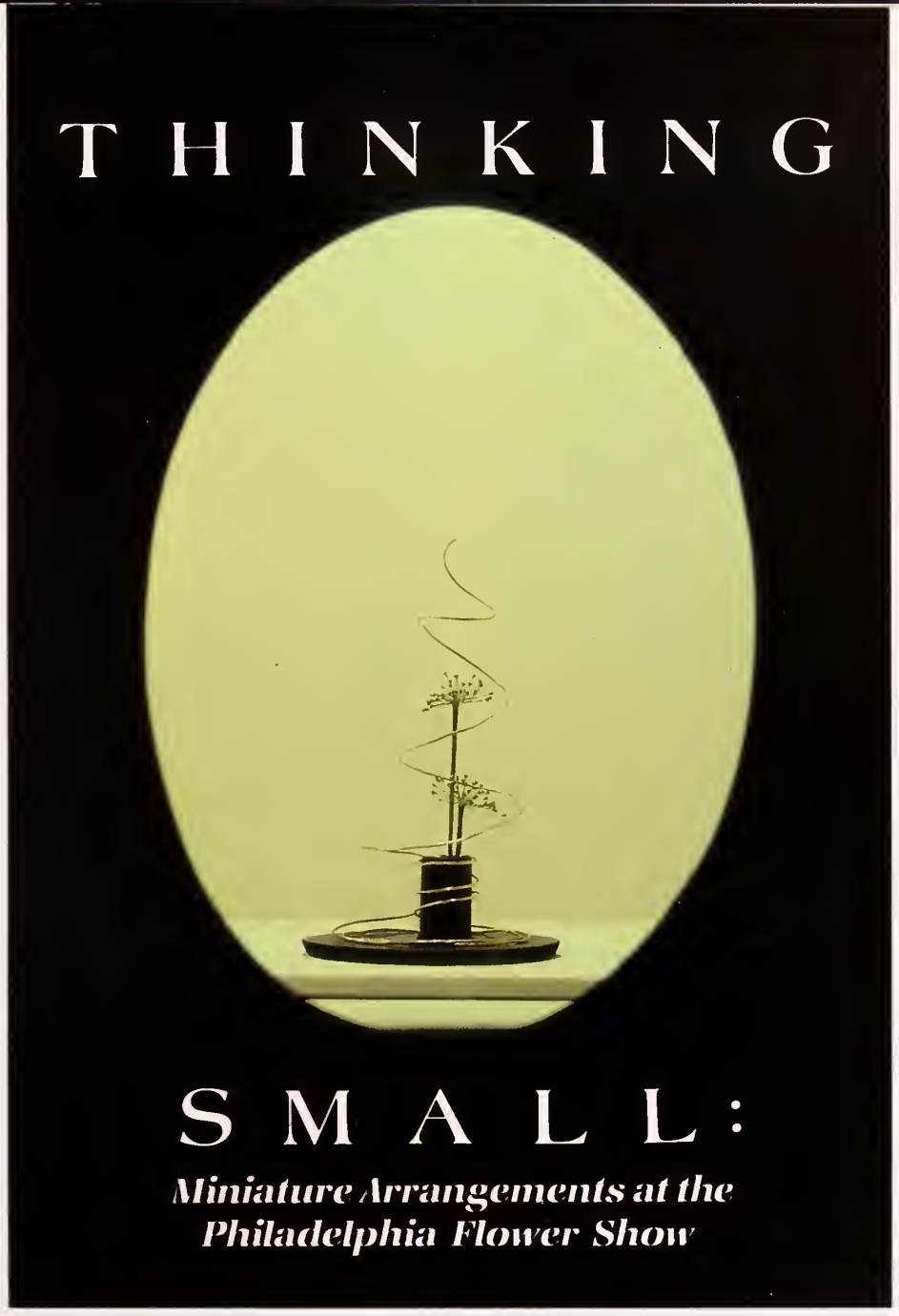


photo by Kenneth Tietjens

"Ever Let the Fancy Roam," an entry in the miniature arrangement class. The dill is set in a magic marker cap with a brass spiral at the 1985 Philadelphia Flower Show. The judges commended the "strong design and interpretation." It won an honorable mention.

by Lucie B. Steele

In 1982 Flower Show Schedule listed for the first time in the Competitive Classes two miniature arrangement sections: Rhythm and Miniature Masterpiece. They were to be dried flower compositions, *not exceeding 5 in. in any direction*. I signed up for Rhythm.

I had never attempted a miniature but it seemed logical that such a tiny thing was appropriate for my first entry in "The Big Show." Unlike a niche I rationalized, a miniature would not require a background; I could do it ahead of time because no fresh material would be used; it would be a lot easier to transport; and, most important, something so minute would be easier to whip into shape than a niche.

I began by looking for the right container – one that would convey a sense of motion, one that would be no more than one inch tall, preferably less. For weeks during the quest my constant companion was a dressmaker's tape measure. It indicated that milkweed pods for my purpose were oversized, as were the vials from the medicine chest, the snuff box from the coffee table, the wasp's mud nest from the front porch and the spring from my husband Jim's work bench. Soon I realized that this miniature business was going to be more difficult than I had originally thought.

starting with fungus

An undulating fungus, variety unknown, 2 in. in diameter and a ½ in. tall, that was

continued



photo by Edmund B. Gilchrist, Jr.

"Rhythm," an entry in the 1982 Show. A fungus container sets off an orchid, crown of thorns and Harry Lauder's walking stick. Although the judges deemed the base a "trifle heavy," they felt the "Rhythm" [was] achieved with great restraint." The arrangement won a second.

pried from a diseased back yard cherry tree *(Prunus serotina)*, ended up as the container. The fungus had a slight hole in the middle into which I could slip a dab of floral clay to anchor future flowers. Later I would disguise the clay with flakes of oatmeal roasted in the oven until they matched exactly the beige of the fungus.

The container selected, I began to search for a base – something about ½ in. high, something that would blend in form and color with the fungus, something that would form its bottom so the clay slipped into its middle would not mess up the display case. The same infirm cherry tree yielded a sliver of bark that was ideal.

Then came the choice of material to establish a rhythmic line. Each honeysuckle *(Lonicera japonica)* branch I picked was either too fat or curved in the wrong place. Every snippet of broom *(Cytisus scoparius)* I collected, despite soaking and wiring into curves, was either too thin in scale or too stiff to impart a feeling of movement. I discarded the honeysuckle and broom and went for Harry Lauder's walking stick *(Corylus avellana* 'Contorta'), and in my frenzy to find the perfect branch, nearly decimated our one small shrub. When the bush could take no more pruning, I knew I must improve upon Mother Nature, and thus fashioned together with Elmer's glue several small sections of Mr. Lauder into the ideal curve. Wood stain applied with a Q-tip hid the pasted seams. The arrangement, line at last established, was now 4⅞ in. tall and ready to receive flowers.

It was now the middle of January. I had been working on "Rhythm" for two months and thinking about it for four. The garden was dormant and yielded no blooms. Visits to florists ended in frustration. After untold hours of searching, I realized that no dried flowers the color and size I needed were available commercially. I would have to find something live and dry it myself. Jim's favorite greenhouse orchid with six small yellow blossoms was deflowered as was his crown-of-thorns *(Euphorbia splendens)*. The blossoms were wired and after wiring were gently placed in Silica-gel, a preservative powder, to dry. A wire carefully nudged through the center of the petiole before drying makes the preserved flower look as though it has a natural stem. A wire also enables the arranger to wedge the petiole into floral clay without shattering the stem.

The Super Bowl ended as did my supply of unblemished blossoms, and my efforts to complete "Rhythm." By Ground Hog Day two weeks later, I still had no offering for the Show.

microsurgery

While the rest of the family glued themselves to the TV in the den on Super Bowl Sunday, I certain that my magnum opus would be completed before the end of the 4th quarter, arranged in the kitchen. With magnifying glass in one hand and tweezers (the kind with the finger holes) in the other, I performed microsurgery. Delicately I guided a wired orchid into the clay at the base on the Harry Lauder twigs. With the stem anchored into the clay, I gleefully removed tweezers and in my premature elation brushed the flower, causing the petal to snap. I ripped out the orchid and began again with another one, breaking it too – and another – and another. The Super Bowl ended as did my supply of unblemished blossoms, and my efforts to complete "Rhythm." By Ground Hog Day two weeks later, I still had no offering for the Show, despite daily efforts to convert with

a toothpick and Elmer's a petal-less flower head into a perfect specimen. By President's Birthday weekend, still gluing, I was close to panic and wanted to pull out of the Show. Rule R in the schedule haunted me: **Exhibitors Must Find A Substitute If Unable To Exhibit.** Who would replace me at such a late date? Four days before judging began, I finally managed to insert mended orchids into clay and immediately packed my offering for transportation to the Civic Center by taping it to a shallow cardboard box that once contained 48 cans of dog meat.

The two miniature arrangement classes proved so popular with both the exhibitors and the viewers in 1982 that the Flower Show committee added a third section the following year and Jim added a plywood box and a camera to my table of miniature necessaries. In the plywood box, which conformed precisely to the display case at the Civic Center, I could stage a mock-up in our Haverford cellar; I could then photograph my efforts (I had learned from "Rhythm" that the secret of constructing a good miniature is scale, and from a snapshot it should be impossible to discern a mini from a maxi because the scale is so perfect).

In the 1983 Show my offering for "Twist of Nature" was an arrangement of honeysuckle tendrils, crown-of-thorn blossoms and minute pods borrowed fron a neighbor's clematis. A black cap from my father-in-law's styptic pencil tube served as container, mounted on a black poker chip base. As in "Rhythm," I learned while working on it. In "Twist" I discovered glue guns and how they affix instantly a portion of one twig to another to create the perfect branch. I learned to dry three times as many flowers as I would actually use (insurance for breakage), and I learned that I could use flowers from my garden and weeds from nearby fields if I dried them in late summer. I also discovered that floral clay takes paint and thus this mechanic can be concealed – Rule L which states that mechanics must be concealed was still haunting me.

My third effort in miniatures was "Tranquility – an arrangement in the Oriental Mood." It consumed my winter 1984 months while the family thrived on frozen dinners. A ½-in. molly bolt, also known as a masonry expansion nail, the color of old pewter, served as the "vase" instead of anchoring a flapping shutter to our home. Floral clay affixed the container to a rectangular, footed base that Jim spent long hours building from balsa wood salvaged from a son's model airplane. In creating this miniature, I learned that leaves and buds of woody plants dry in Silica-gel as well as herbaceous ones do; that a bit of clay on the head of a brad securely holds a dollop of oasis in the bottom of a vase. I discovered too that large flowers can be pared down to correct scale with very sharp cuticle scissors.

In the 1985 Flower Show the miniature arrangement category expanded to four classes while I expanded my know-how and Jim expanded his cellar work bench to include a 12 ft. x 4 ft. area for my lilliputian rendition of "Ever Let the Fancy Roam." The "fancy" in my offering was a brass wire that our son spiraled into perfect curves by twisting it around a cardboard cone. It wound around an agate base, around a Magic Marker cap container, and continued to 5 in. infinity. The flowers were sections of a dill umbel *(Anethum graveolens)*. Because their stems were too thin to contain a wire and too fragile to insert into oasis without a wire, I devised another stem. Petioles plucked from a *Hibiscus sinensis* and whittled with an X-acto knife until they were the correct diameter were perfect for my purpose because their flat, slightly indented tops could hold a drop of glue and then the dill flower. The evidence of adhesive as well as the brown stalks were hidden from the judges because they were painted chartreuse – Rule L again.

After Jim and I installed "Fancy," we roamed the Civic Center pretending to peer at other exhibits, all the while looking over shoulders to observe the judges observing the miniatures. I said to Jim, "There's something I must tell you, Jim."

"What, Lucie?" He sounded a little worried as he turned away from an orchid display.

"We've been asked to serve as co-chairs of the miniature arrangements classes for the 1986 Flower Show."

He seemed relieved.

●

Even though "Fancy" was an honorable mention disappointment in the 1985 Philadelphia Flower Show, Lucie B. Steele fared better in the niche classes. She was the recipient of the Nancy Reid Claussen award, the Helen Hope Deckert award, and the Pennsylvania Horticultural Society Arrangements Sweepstakes trophy. Her husband *did* agree to co-chair the miniature arrangement classes in 1986 Flower Show.



photo by Lucie B. Steele

"A Twist of Nature of Nature." Entry in the 1983 Philadelphia Flower Show. The container is the top of a styptic pencil tube mounted on poker chips. The arrangement consists of honeysuckle, painted black, crown of thorns and clematis. The miniature arrangement won honorable mention.



photo by Edmund B. Gilchrist, Jr.

"Tranquility." A winner at the 1984 Philadelphia Flower Show. The arrangement of azalea, paper white narcissus and Harry Lauder's walking stick were set in a molly bolt. The judges lauded it for its "essence of tranquility."

PLANT SOCIETY MEETINGS in 1986

In the fall of 1985, *Green Scene* invited local plant societies to submit information for our readers about one major meeting and one major event they were planning for 1986. We've listed here the Societies that responded. We plan to publish such lists annually in March and invite Plant Societies to send us information as it becomes available for 1987. The final deadline is November 15, 1986. We'd appreciate it if correspondents would follow the format shown here when sending information. Write Plant Societies, *Green Scene*, 325 Walnut Street, Philadelphia, PA 19106.

PHILADELPHIA **AFRICAN VIOLET** SOCIETY

Annual Show
May 3 & 4
Plymouth Meeting Mall
Includes Plant Sale of plants from hybridizers all around the country

Contact:
June O'Neill
PAVS
7905 Cadillac Lane
Philadelphia, PA 19128

DELAWARE VALLEY **CHRYSANTHEMUM** SOCIETY, INC.

Chrysanthemum Show
October 18 & 19
Del. Co. Vocational School
Broomall, PA

Cutting Sale
May 24 & 25
10 am - 4 pm
Tyler Arboretum
Lima, PA

Contact:
William R. McKinney
DVCS, Inc.
535 Woodhaven Road
West Chester, PA 19382

AMERICAN **CONIFER** SOCIETY

Annual Meeting
August 1986
Date/times TBA
Portland, OR

Contact:
Maxine Schwartz
Secretary, ACS
Box 22
Severna Park, MD 21146

DELAWARE VALLEY **DAYLILY** SOCIETY

Region III Meeting
July 10, 11, 12
Holiday Inn
King of Prussia, PA

Plant Sale
September 6
Tyler Arboretum
Lima, PA

Contact:
Kjell Christiansen
DVDS
Box 200A
Glen Mills, PA 19342

DELAWARE VALLEY **FERN** SOCIETY

Annual Meeting
November 1986
Date & location will be available from J. Scott

Contact:
John D. Scott
DVFS
RD #1, Box 249D
Mertztown, PA 19539

DELAWARE VALLEY UNIT **HERB SOCIETY** OF AMERICA

Dedication of Industrial Herb Garden
June 29
10 am - 4 pm
Prallsville Mill
Route 29
Stockton, NJ

Annual Herb Sale & Luncheon
May 17
10 am - 4 pm
Prallsville Mill
Route 29
Stockton, NJ

Contact:
Joan Schumacher
HSA
8 Windey Way Lane
Doylestown, PA 18901

PENNSYLVANIA HEARTLAND **HERB SOCIETY** UNIT H.S.A.

Herbal Delights Symposium
May 30 & 31
Allbright College
Reading, PA

Contact:
Barbara Brouse
HSA
2015 Potshop Road
Norristown, PA 19403

SUSQUEHANNA UNIT **HERB SOCIETY** OF AMERICA

Herb Sale
May 3, 10 am - 2 pm
Rockford Plantation
Lancaster, PA

Contact:
Judith Eshleman
HSA
1421 Marietta Avenue
Lancaster, PA 17603

DELAWARE VALLEY CHAPTER **HOLLY** SOCIETY OF AMERICA

Spring Meeting
April 5
Location TBA

Fall Meeting
November 22
Location TBA

Contact:
Elizabeth Kassab
(215) 566-2110
within 30 days of event

MID-ATLANTIC REGIONAL GROUP AMERICAN **HOSTA** SOCIETY

Annual Local Meeting
June or July: TBA
Wilmington/Phila. area

Auction of Hostas Contributed by Members
Many rare hostas at the Annual Meeting

Contact:
Warren I. Pollock
AHS
202 Hackney Circle
Wilmington, DE 19803

(TBA to be announced)

IKEBANA INTERNATIONAL PHILADELPHIA CHAPTER #71

Ikebana Demonstration
April 24, 10 am
Horticulture Center
Fairmount Park, Phila.

Contact:
Lorraine H. Toji
Ikebana International
R.R. #2, Box 110
Sewell, NJ 08080

DELAWARE VALLEY **IRIS** SOCIETY

Annual Iris Show
May 25, 11 am - 6 pm
Berkshire Mall
Reading, PA
Free

Rhizome Sale
July 19, 10 am - 2 pm
Tyler Arboretum
Lima, PA

Contact:
Mrs. Arthur S. Martin
Publicity Chair, DVIS
RFD 3, Box 223
Hockessin, DE 19707
(302) 998-2414

MIDDLE ATLANTIC REGIONAL **LILY** GROUP

Annual Show
June 28 & 29
Horticultural Hall

Bulb Auction & Sale
November 8, 2 pm
1012 Westview St.
Phila., PA 19119

Contact:
Kathryn S. Andersen
Lily Group
7 Perth Drive
Wilmington, DE 19803

MARIGOLD SOCIETY OF AMERICA

Annual Meeting
July 31 - August 3
San Jose, CA

Contact:
Jeannette Lowe
MSA
394 West Court Street
Doylestown, PA 18901

SOUTHEASTERN PENNSYLVANIA **ORCHID** SOCIETY, INC

Annual Orchid Show
2nd weekend February
King of Prussia Mall
King of Prussia, PA

Annual Orchid Auction
2nd Wednesday October
Conshohocken Fire Company No. 1
Conshohocken, PA

Contact:
Mrs. Curtis Cheyney, III
OS, Inc.
205 Whitemarsh Road
Ardmore, PA 19003

PERENNIAL PLANT ASSOCIATION

4th Perennial Plant Symposium
July 8 - 11
Hyatt Regency
Columbus, OH

Contact:
Steven M. Still
PPA
217 Howlett Hall
2001 Fyffe Court
Columbus, OH 43210

AMERICAN **POMOLOGICAL** SOCIETY

Annual Meeting in conjunction with American Society for Horticultural Science
August 11 - 20
University of California, Davis Campus, California

Contact:
Dr. L. D. Tukey
APS
103 Tyson Building
University Park, PA 16802

VALLEY FORGE CHAPTER AMERICAN **RHODODENDRON** SOCIETY

Rhododendron Flower Truss Show
May 17, 1 - 4.30 pm
Tyler Arboretum
Lima, PA

Azalea & Rhododendron Hybrids & Cuttings
as landscape specimens
May 10
Valley Forge Methodist Church
Route 23, ¼ mi. West of jct. Rte. 252

Contact:
Francis Raughley
ARS
2112 Foulk Road
Wilmington, DE 19810

AMERICAN **ROCK GARDEN** SOCIETY – DELAWARE VALLEY CHAPTER

Delaware Valley Garden Tours
May 1986
Date & time TBA

Plant Sale
For Members Only – become one!
June and September
Date & Location TBA

Contact:
Charles Ulmann
ARGS
1320 Ashbridge Road
West Chester, PA 19380

DEL-CHESTER **ROSE** SOCIETY

Annual Rose Show
Free - open entry
June 14
Exton Mall (Rtes. 30 & 100)

Annual Auction
Plants plus
Delaware Valley Church of Christ
(across from Penn St. Lima campus)

Contact:
Jack M. Bilson, Jr.
Rose Society
127 Gable Road
Paoli, PA 19301

WATER LILY SOCIETY

Water Lily Symposium
August 1, 2, 3
St. Louis, MO

Contact:
Charles B. Thomas
WLS
P.O. Box 104

classified ads

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Pennsylvania Wines
Come of Age. See page 16.

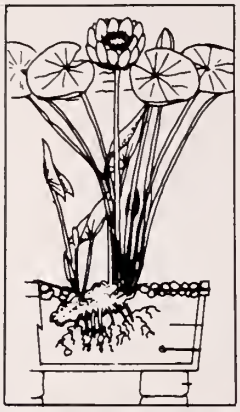


THE green scene

HORTICULTURE IN THE DELAWARE VALLEY
MAY • JUNE • 1986
$1.50

Longwood's *Victoria* hybrid. See p. 3

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Front cover: Louis E. Randall standing among Longwood's *Victoria* hybrid.
photo by Mark Steffeck

Back cover: photo by Julie Stachecki

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Horticultural Hotline: 215-922-8043

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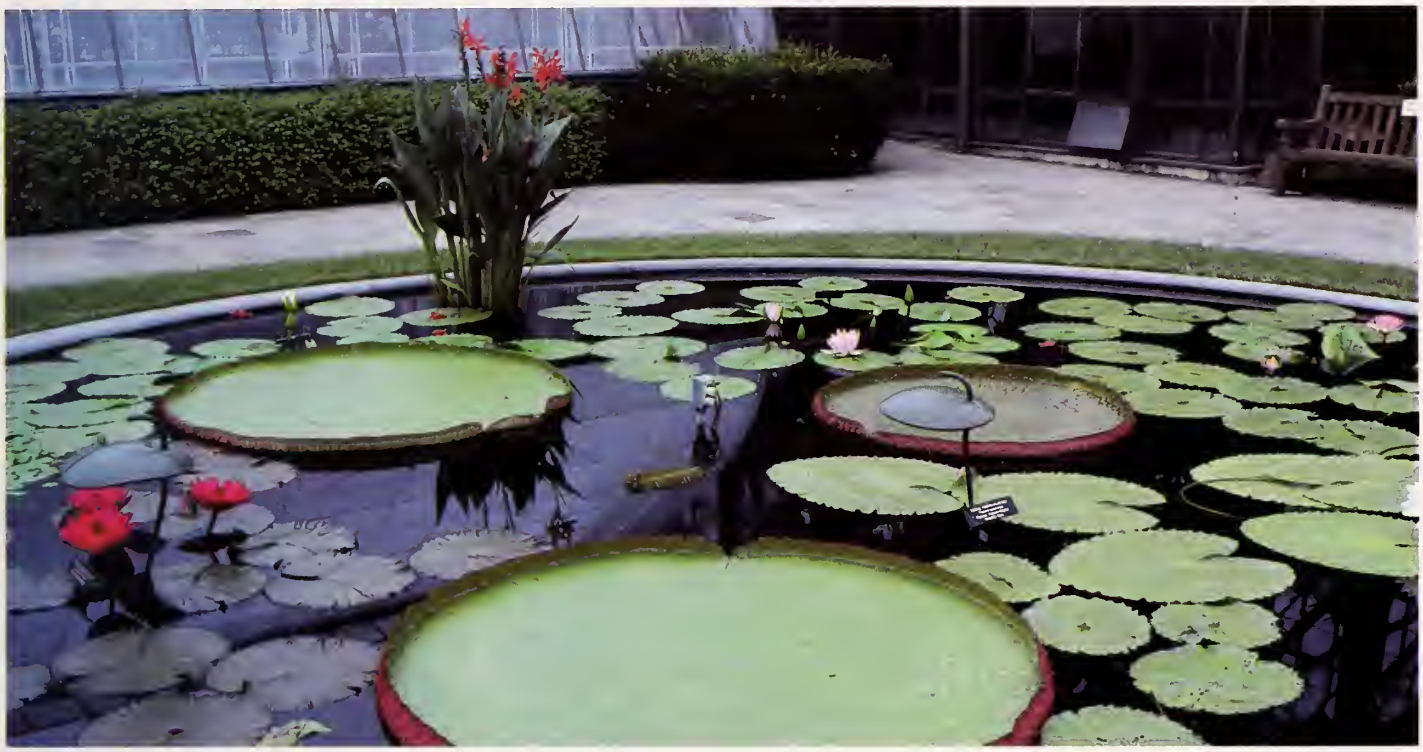
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The Astonishing Victoria Water Lilies at Longwood Gardens

by Louis E. Randall



photos by Louis E. Randall

Victoria amazonica with its crimson leaf edges and vigorous growth is the male parent in the Longwood hybrid cross.

Long ago a beautiful Indian maiden, who believed that the moon was a strong and handsome warrior, dove into the lake to embrace the reflected moon; she drowned. The moon changed her into a large and gorgeous flower that welcomed the moon every night by opening its petals. This legend about the *Victoria* water lilies was an integral part of the culture and daily lives of the Guarani Indians of South America. One of the native names for the giant water lily was "Yrupe," in which the "Y" meant water and "rupe" described a large tray and so it was called "water-platter."

The person first credited with discovering the giant water-platter in 1801 was Thaddaeus Haenke, a botanist traveling in Peru. He found it growing in the back waters of the Mamore River, one of the tributaries of the Amazon. The French botanist M. Bonpland, the next person reported to behold this plant, found it near Corrientes, Argentina in 1820. M. D'Orbigny sent specimens and drawings to the Natural History Society of Paris in 1828. Dr. Edward F. Poppig, a German botanist, found this plant in 1832 on the Amazon River and was the first to give it a name, *Euryale amazonica*. Not until 1837 was the water-platter brought to the attention of all Europe.

When Indians are collecting seeds of the* Victoria *for maize, they throw goat skins upon their surfaces and place their infant children upon the leaves.

Sir R. H. Schomburgk discovered this plant on the upper Berbice River in British Guiana on January 1, 1837 and not knowing of his predecessors' discoveries sent specimens and drawings home to England. Later Dr. Lindley described the species as *Victoria regia* in honor of Queen Victoria who was the reigning monarch at that time. This name was used for the northern species, while in 1840 D'Orbigny named the one found at Corrientes *Victoria cruziana* in honor of General Santa Cruz of Bolivia. Both species belong to the Nymphaeaceae or water lily family. *Victoria regia* was later changed to *Victoria amazonica* in accordance with the International Rules of Botanical Nomenclature, since "amazonica" was the first specific epithet applied to this plant by Dr. Edward F. Poppig. *Euryale*, in contrast to *Victoria*, is an annual.

Many attempts to cultivate the plant failed: seeds sent to England in jars of wet clay did not germinate, and rhizomes and 35 living plants also died. On February 28, 1849 two English physicians, Dr. Hugh Rodie and Dr. Lachie of George Town, Demerara sent seeds in vials of pure water to Sir W. J. Hooker. These were sown, and most of the seeds germinated. The seedlings were then distributed throughout Britain in hopes of producing a flowering

continued

specimen.

The first flowering of *V. amazonica* occurred at Chatsworth, the seat of the Duke of Devonshire. Joseph Paxton was the gardener of the Chatsworth estate and was able to bloom his *Victoria* water lilies on November 9, 1849 before the ones at Kew. He later presented the first bloom to Her Majesty and His Royal Highness Prince Albert at Windsor Castle. Soon seeds were sent to the United States and Thomas Meehan, head gardener at the estate of Caleb Cope, Esq. of Philadelphia, produced a flowering plant on August 21, 1851. Caleb Cope was fifth president of The Pennsylvania Horticultural Society (1842 to 1851).



1.



2.

Longwood's *Victoria* hybrid:
1. crown of tuberous rhizomes;
2. underside of leaf network structure.

the plants' structures

The vegetative structure and flower of *V. amazonica* and *V. cruziana* are basically the same. The *Victoria* has a crown of large spindle-shaped tuberous rhizomes that stand erect in the soil, where it is anchored by innumerable spongy roots that spring from the base as it grows (see drawing). Arising from the crown are the leaf's petioles, which are covered with stout fleshy spines and transversed internally by four large air-canals and a number of smaller ones. The petioles are usually greater in length than the depth of the water. This allows the leaves to adjust themselves to changes in the water level. Eight main ribs covered with spines radiate from the summit of the leaf petiole, and they diverge constantly into numerous lesser ones and these in turn diverge in all directions. They are also strengthened by arches or curved cross-ribs covered with more spines. These strengthening tissues are also full of air-spaces and canals, thus buoying up the mass of the leaf along with the petioles. Overall it looks like an artistic geometrical diagram constructed in three dimensions.

The structural support of the *Victoria* leaf inspired Joseph Paxton to design a new kind of greenhouse for the *Victoria*. He wanted something light, strong and graceful and made from flexible materials. His design was so successful that after he built the *Victoria* house he was asked to build a large greenhouse to cover the whole Great Exhibition of 1851 in Hyde Park, London. His Crystal Palace is the predecessor of the modern greenhouse and conservatory The leaf's network of veins not only keeps the leaf afloat, but gives it the strength to hold up weight. By placing a thin board upon the upper surface of the leaf to equalize the weight, it will support 150 to 200 pounds. When Indians are collecting seeds of the *Victoria* for maize, they throw goat skins upon their surface and place their infant children upon the leaves.

A well developed plant will support from eight to ten leaves. The leaf's shape is nearly circular, and they are made up of two wings. At the center of the leaf where these wings join, a narrow groove between the wings is formed and separate only at the exterior of the leaf, somewhat in the form of a notch. A similar notch can be seen on the opposite side, the leaf's apex. This permits some water to run off in heavy rain. The young leaf unfolds and expands as it grows. When fully grown and mature, the texture of the leaf is thin and very fragile; it is pale green on the face. *V. amazonica* is tinted purplish crimson underneath and *V. cruziana* has a violet-blue color in its underside. The turned up edge or margin has a variable crimson color in *V. amazonica* and *V. cruziana* forms its margins much earlier and higher in the mature plant.

The upper leaf surface stomata and tiny depressions are useful as air holes to let out gases which, rising from the water or mud, might be caught in the deep meshes of the netted veins on the underside of the leaf. These stomatodes also drain much of the rain water that accumulates, protecting against fungal and algal build-up on the leaf's surface.

Overall the length of the newly expanding leaf grows about one inch per hour and the circumference increases four or five square feet in twenty-four hours. *V. amazonica* usually grows to 60 inches. One of the largest *V. amazonica* on record for an outdoor plant in the United States is 90 inches at the Bartholdi Basin Garden in Washington, D.C. in 1891. More recently Slocum Water Gardens in Florida grew the Longwood *Victoria* hybrid with leaves measuring eight feet across. The largest Longwood *Victoria* hybrid leaf on record at Longwood Gardens is 88 inches (1979).

Not only is the plant's leaf large and complex, but so is its nocturnal flower. When a flower bud and a new leaf start moving to the surface of the water, the bloom of a *Victoria* is not far behind. The flower-bud is usually large and later expands from six to nine inches. The bud has four sepals, which are armed with prickles. The *V. cruziana* has spines only at the bases of the sepals, while *V. amazonica* has spines all over the sepals and it is longer (needle-like). In the early afternoon the bud rises over the water. Soon the sepals will open and a sliver of white petals can be seen.

photos by Louis E. Randall



1.



2.



3.



4.

Longwood's *Victoria* hybrid a young water lily leaf : 1 & 2

The Longwood *Victoria* hybrid blooms: 3. first night; 4. second night.

After sunset the falling light levels trigger the flowers to open. The flowers consist of 50 to 60 petals in three distinct sets, each growing smaller towards the stamens in the center. Each flower blooms two consecutive nights and is pollinated by the scarab beetle, *Cyclocephala hardyi*, in its native habitat of South America. (They are hand-pollinated at Longwood Gardens.)

During the first night of bloom, the sepals open. but the petals remain firmly closed. Later the petals slowly open one by one and the flower gives off a strong pineapple odor. Aiding in the dissemination of the scent, the flowers begin to heat up and may be nearly 20°F warmer than the surrounding air. As the night goes on more petals expand and produce a beautiful magnolia-like flower with almost pure white petals. This is the first set of petals. Soon the scarab beetle, attracted by the pineapple scent, visits the flowers and pushes its way through the immature anthers to the gynoecium (the female elements of a

continued

flower), which is ready to receive pollen that the beetles have brought back from the second day flowers. In the early morning hours the flower temperature drops, the scent disappears, rays of pink appear on the flowers, and the flowers close at sunrise, trapping the beetles inside. The beetles are well provided for with the nectar and starchy floral structures. Later in the afternoon, the flower again opens and the petals begin to expand. The sepals and some of the first petals are still white

Overall the newly expanding leaf grows about one inch per hour and the surface increases four or five square feet in twenty-four hours.

and lie flat on the water, but above them standing erect in the central portion of the flower are the reddish-purple second set of petals. That evening, the third set of smaller petals rise up in an erect position, yet curved in the extreme center of the flower. Now the beetles, covered with a sticky floral secretion, escape from the flower. As they escape they brush up against the mature inner rings of stamens inside the third set of petals. With this pollen they fly off to new first night flowers to pollinate and to start the whole cycle again.

The second night flowers will close up the next morning and the spent flowers will sink below the water. For some time the seeds mature under water in a pod the size of a baby's head. Soon the pod will open by slits in its side and the seeds will float to the surface covered with a gelatinous tissue. They will be led by the water currents to their place of germination.

longwood hybrid

C. H. 'Pring, world renowned breeder of tropical water lilies from the Missouri Botanical Garden, was the first to suggest a cross between *V. amazonica* and *V. cruziana*. In 1961, these two water lilies were cross-pollinated to produce Longwood *Victoria* hybrid. Patrick A. Nutt, who was responsible for the lily collection at Longwood Gardens at that time, obtained pollen from the anthers of a second night *V. amazonica* flower and using a small camel-hair brush distributed the pollen over the stigmatic surface of a first night *V. cruziana* flower. The stamens of the *V. cruziana* were removed and the flower covered with a cheesecloth bag to prevent foreign pollen. After the seed pods began to swell, Nutt covered them with a cheesecloth bag and later collected the seed pods after the peduncles had decayed. He kept the pods in a container of water to dehisce (open). They were later stored in moist sand at 65°F for eight weeks to fully ripen the seeds. Soon after germination and during their first year of growth, the Longwood *Victoria* hybrid displayed some unique characteristics: more vigor, larger leaves than either parent, increased strength, increased hardiness, early maturity, intermediate maturation and increased height of leaf margins along with brighter exposed outer margins, and the ability to produce more and larger flowers. Longwood Gardens has sent seeds to botanical gardens and arboreta in this country (New York Botanical Garden, U.S. National Arboretum, Los Angeles State and County Arboretum, Honolulu Botanical Garden, and Missouri Botanical Garden), and all over the world (Main Botanical Garden, Moscow, USSR; Royal Botanical Garden, Edinburgh, Scotland; Auckland Domain Parks Department, Auckland, New Zealand; and Papyrus Institute, Orman, Egypt).

Cultivation requirements for the *Victoria* are heat, light and a rich loam. Seeds should be sown in March about twice their depth and spaced about an inch apart in a shallow pan. Use a potting mix consisting of one part screened loam and one part coarse sand. Submerge the pans into a tank with the water level from 2 to 3 in. above the tops of the pans. For *V. cruziana* the minimum water temperature is 72°F, while *V. amazonica* needs a a minimum temperature of 85°F. Light is important; if the weather is cloudy, germination will be delayed.

Bill Pierson, who now cares for the water lily collection at Longwood Gardens, hand pollinates the *Victoria* water lilies to obtain viable seeds. He suggests that soon after germination, plants should be repotted with twelve ounces of 14-4-6 fertilizer to a bushel of soil, enlarging the pot size each time until they become rootbound near June. When planting outside in June, mix three pounds of 10-6-4 fertilizer to each container before filling with water and then plant. If the water lily pools can be heated this can greatly aid the growth of the Victorias and prolong their life into the fall. Next fertilization is around July 1. One pound of 20-20-20 soluble fertilizer is divided into three parts and placed around the perimeter of the root system. Fertilizing continues until mid-August. The amount and frequency of applications depend on plant size and environmental factors such as sunlight and temperature.

Japanese beetles attack both leaves, flowers and flower buds. They can be controlled by hand picking or beetle traps. Aphids may be removed by a strong water spray and can be consumed by the fish as food. The leaf miner is also a problem and will tunnel its way under the epidermis of the leaves, forming yellow, irregular lines. Remove damaged leaves as soon as possible.

Longwood Gardens in Kennett Square, Pennsylvania displays the *V. amazonica, V. cruziana* and Longwood *Victoria* hybrid along with its other collections of water lilies and aquatic plants. The Victoria water lilies flower around late July into late August. Leaf size also reaches its peak during mid-August.

Sources for Water Lilies:

Lilypons Water Gardens
6800 Lilypons Road, P.O. Box 10
Lilypons, MD 21717
V. cruziana (Seedlings $42.50 each)
Catalog $4.00

Barbara Dobbins
P.O. Box 4353
Santa Barbara, CA 93103
V. cruziana, V. amazonica, and Longwood *V.* hybrid
(Seedlings in limited numbers at $37.50 each plus shipping and handling)

Slocum Water Gardens
1101 Cypress Gardens Road
Winter Haven, FL 33880
V. cruziana and Longwood *V.* hybrid
(Seedlings $35.00 each and seeds $1.00 each)
Catalog $2.00

More Reading about Water Lilies

*Allen, John F. *Victoria regia or The Great Water Lily of America.* Boston, MA. Dutton and Wentworth, 1854

*Anderson, Edgar. "Plants Which Stir Men's Minds," *Missouri Botanical Garden Bulletin,* Vol L III, No. 5, May 1965. pp. 1-18.

*Nutt, Patrick A. "The Victoria Waterlilies," *The American Horticultural Magazine,* July 1962. pp. 132-138.

Prance, Anne E. and Ghillean, T. "The Beetle and the Waterlily," *New York Botanical Garden Journal,* August 1976.

Tomocik, Joseph V. "Victoria: Grandest Water Lily of All," *The Green Thumb* (Denver Botanic Garden Bulletin), Spring 1985.

*These publications are available in the PHS Library

SOCIETY

The Water Lily Society
P.O. Box 104
Buckeystown, MD 21717-0104

The Water Lily Society is devoted to the dissemination of knowledge in the science and art of growing water lilies and other aquatic plants. Membership in the Society automatically includes a subscription to *The Water Gardening Journal,* which is published quarterly in the months of March, June, September, and December.

●

Louis Randall was a participant in the Summer Laboratory of Ornamental Horticulture at Longwood Gardens, June 1984. He recently received a B.S. in Plant Science, Landscape Horticulture from the University of California at Davis. He is now the Education Intern at the Morris Arboretum of the University of Pennsylvania.

Growing Aquatics in Containers

by Robert Hays

You may have many reasons for not having a water lily pool in your garden. Cost, lack of space, and maintenance might be just some of them. As far as my own garden goes, the reasons are threefold: a Tibetan terrier, a springer spaniel, and a very large yellow lab. All three adore water and would foil almost any attempt to create a water garden. Yet my desire for one remains undaunted.

To get around the dogs, I decided to try growing aquatic plants in containers above ground where they wouldn't bother them. I began by growing the umbrella palm, *Cyperus alternifolius*, in lucite trays (about 4 - 6 ft. long) filled with water outside on our west-facing deck. The cyperus were potted in shallow clay pots and set in the trays that held about four inches of water. The results were terrific. The constant supply of water encouraged tremendous growth on the cyperus, and at the same time, I found, provided the dogs with a "watering hole."

I wiped the trays down with a sponge about once every two weeks to remove accumulations of algae. I considered chemical treatments such as clorox or a commerical algaecide to eliminate this maintenance, but decided against them

continued



photo by Dick Keen, courtesy of Longwood Gardens

A hardy hybrid lotus: *Nelumbo* 'Mrs. Perry D. Slocum'



photo by Robert Hays

Author's water lily in half of a former whiskey barrel.



photo by Robert Hays

Container grown lotus at Longwood Gardens, *Nelumbo caspicum*.

because of the dogs.

During the winter (because this species of cyperus is tropical and cannot tolerate temperatures much below 50°F), I brought the trays indoors and placed them in front of three sliding glass doors that were not used during the colder months. Growth was slower during this period, but the trays and water produced a nice effect when the sun shone on them and the light was reflected into the room.

I have continued to use the trays and have tried a number of other species in them since then, including several different types of cyperus as well as Longwood's aquatic cannas. All worked equally well.

After several years though, I began once again to yearn for a garden pool, filled with graceful water lilies, exotic lotus, and colorful bog plants. About that time, a friend offered me divisions of 12 different hardy water lilies that she was growing. Eagerly, I accepted her offer without any clue as to what I was going to do with them when they came. Fortunately, she sent them during the winter, so I stored them in the refrigerator and bought myself some time.

primary containers: half whiskey barrels

By the time March rolled around, I had mapped out my strategy. I went down to the local lumber yard and bought about a dozen "half whiskey barrels," that at one time were used to age whiskey and were later cut in half. The barrels are made of one inch thick, white oak boards, which are charred before use. Whiskey is then aged in them for about a year, after which the barrels are discarded.

After I got the barrels home, I went about placing them in the garden. Our garden (in case you are picturing some rundown distillery with all these cast-off barrels) is located in Sewickley, Pa. on two and a half acres, surrounded on three sides by woods. Most of the plantings are confined to large, free form, mulched beds, separated by grassy paths that meander between them. The informality of the design is reinforced by large drifts of perennials planted to accentuate the curves of the beds.

Except for two of the barrels, which were positioned by the terrace, all were placed directly into the beds. I arranged them so that they blended in with the beds, either by placing them in front of shrubs or amidst a drift of perennials. Some were stationed singly while others were in groups of two or three.

Once I had placed the barrels, I began

to fill them with water. It wasn't until then I realized that not all the barrels were swollen shut. That is, swollen enough to hold water. So, not really wanting to paint them, and not knowing what kind of paint to use anyway, I filled the barrels to capacity and literally soaked them with the hose. I continued to do this every day for a week. By the end of the week, almost all the barrels had swelled enough to hold water. I have since read that bitumen paint will seal them. I let the barrels sit empty of plants, but full of water, for about a month to dilute what was left of the whiskey before putting the plants in.

During this time, I plotted my next move. I decided that it was best not to plant the lilies directly in the barrels for several reasons. First and foremost was the fact that most aquatics must not be allowed to freeze solid during the winter. Generally, this is not a problem with an in-ground pool as it is insulated by the surrouding soil. I was fairly certain, however, that the water in the barrels would be frozen to the bottom for a good part of the winter and the lilies would be killed. Thus, the barrels would have to be moved someplace where they would stay above freezing. Just the thought of trying to move one of those barrels filled with wet soil was enough to discourage me from attempting it.

Another reason I decided against it was that I felt it would be difficult to divide the lilies once they were in the barrels. Again, in a pool, this might not be such a problem. Because of the restricted growing space in a barrel though, I knew that the lilies would need to be divided regularly just to keep them going. Consequently, I decided to plant the lilies in containers and sink the containers in the barrels.

containers: laundry tubs

The varieties I had been given were all medium to large-sized growers, so I chose to plant them in the standard 18-in. plastic laundry tubs so familiar to water lily enthusiasts. The soil mixture I used was a heavy, garden loam to which I added some commercial fertilizer specially prepared for aquatics. I planted the lilies, one to a container, as directed in countless water gardening books. The rhizomes were laid out horizontally and covered with soil, making certain that the crown of the plant was showing. The soil was firmed slightly to remove any air pockets that might have formed. I then added about an inch of river gravel on top of the soil to weight the container while it filled with water and to hold the soil mixture and plant in place. This layer of gravel also helped to keep the water clear during the growing season.

At this point, I got the hose and watered the newly planted lily until the container was filled to the rim. I then lifted the tub and submerged it in the already full barrel holding it steady until it sank to the bottom. I found that watering the lily before submerging it helped to cut down the amount of air that is released from the soil and into the barrel and thus helped to keep the water clearer.

Day by day, the lilies began to take hold and produce fresh new leaves, and by the third week in May, I had my first flowers. The plants continued to grow and bloom through all but the hottest part of the summer.

Maintenance requirements of the lilies during the summer were rather minimal. I ran into two problems with the water in the barrels though. During the first year, I found that the water, after about a week became foul and a filmy layer would appear on the surface. I also found, as commonly reported, that the barrels soon became a breeding place for mosquitoes. Both of these problems, I discovered, were easily taken care of by flushing once a week with fresh water from the hose.

By the second year, the water in the barrels seemed to stay clearer for a longer period even without the flushing. This, I suspect, may have something to do with the whiskey and other chemicals encountered when using a "fresh" barrel. As for the mosquito problem, several people have suggested using goldfish in with the lilies. I personally have not tried it, but suspect that for me, at least, it would only cause more problems (i.e., winter storage, and more important, attracting the already all-too-interested racoons). I decided to stick with flushing the barrels as needed.

The only other maintenance that was required during this time was an occasional grooming. This took only minutes and resulted in a more attractive plant and more abundant flowers. Fertilizing was recommended by some, but I have found that with the varieties I was growing, it was unnecessary. By the end of the summer, the leaves of most of them were hanging far over the sides of the barrels as it was.

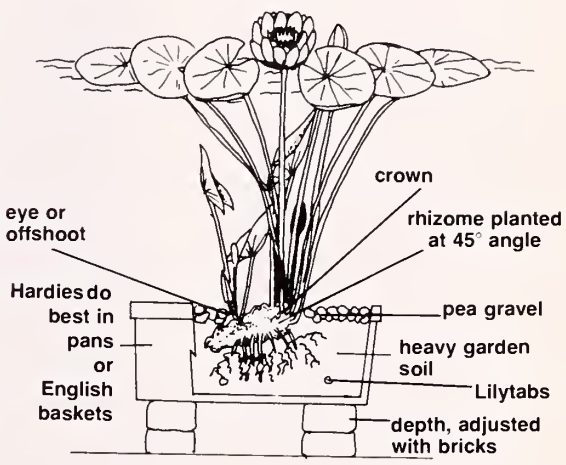
moving plants indoors and out

Because they were all hardy varieties, the lilies were left outside in the barrels late into the fall. Generally, I took the containers out of the barrels in early November and moved them into the garage, which was heated to about 40°F. It is important to note that they were kept from freezing at this temperature, yet it was not warm enough to encourage them to grow. Here, they were stored out of water for the rest of the winter. The tubs were checked once every two to three weeks to make sure that the soil was still wet. This check went on until mid-March, when they were divided, repotted, and sunk in the barrels once again.

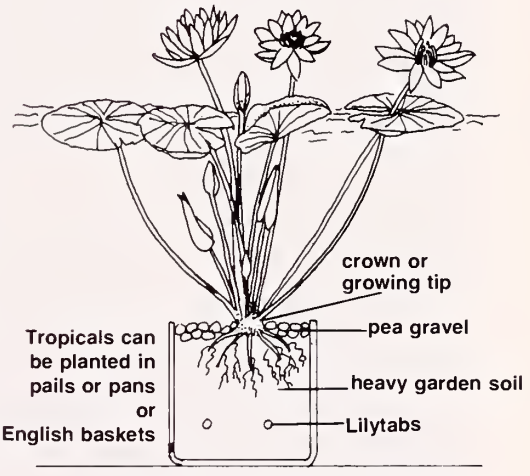
Since that first year, I have tried numerous varieties of hardy water lilies, both hardy and tropical bog plants, and several

continued

HARDY LILY



TROPICAL LILY



drawing courtesy of Lilypons Water Gardens



photo by Dick Keen, courtesy of Longwood Gardens

Nymphoides indicum

Nymphaea colorata, day blooming pygmy water lily



photo by Gottlieb Hampfler, courtesy of Longwood Gardens

species of lotus. I have had varying degrees of success with these plants and my original strategy has been modified for some.

I had to modify the way I dealt with tropical plants. As a general rule, no tropical plants should be put out until well after the average frost-free date, about May 15 in the Philadelphia area. Conversely, if they are to be kept over from year to year, they need to be taken in before the first frost. Just as any houseplant, they should be tended throughout the winter with special attention to their aquatic nature. Often I have found that setting the plants in saucers of water helps to insure they will survive my "light-handed" watering. To date, I have not tried any tropical water lilies, primarily because they are difficult to store over winter and restart in spring. My best advice is to treat them as annuals.

As far as the hardy bog plants and lotus are concerned, I have found them to be rather similar to the water lilies. They are grown and stored on a similar schedule. Lotuses, however, take a bit more care in potting because of the delicate tubers. In addition, because of their large size, it is best to select one of the dwarf varieties. The same is true of water lilies. Generally, water lilies can be classed as small, medium, or large-sized growers. As you may have concluded, the medium and large-sized varieties are not so well-suited to container culture. Midway through the season, their leaves have overrun the edges of the barrels and have begun to hang over the sides. Their performance doesn't seem to be markedly affected, but they are not quite so pleasing aesthetically. This habit would also eliminate the possibility of having several different plants in a single barrel, thereby creating an entire miniature water garden.

There are many reasons for including a water feature in a garden: the refreshing quality of water on a hot summer day, the tranquility of a water lily floating on its surface, or perhaps the desire to grow a particular plant which requires an aquatic habitat. By growing aquatics in containers, you are still able to enjoy all these things while avoiding many of the problems associated with a traditional water lily pool. For me, it's not quite the same, but as long as I've got Gingham, Fergie, and Blogsie, it'll have to do.

Aquatics Recommended for Container Culture

Latin Name (Common Name)	**Habit** (Hardiness)	**Description**
Cyperus alternifolius (umbrella palm)	upright (tropical)	graceful stalks 12 to 36 in. topped by spirals of drooping leaflets giving the appearance of an umbrella
Cyperus isocladus (dwarf papyrus)	upright (tropical)	similar to *C. alternifolius,* but smaller, with stalks topped by tufts of leaflets.
Eichhornia crassipes (water hyacinth)	free-floating* (tropical)	rosette-like cluster of leaves with swollen leaf bases; violet flowers with yellow centers in spikes
Hydrocleys nymphoides (water poppy)	floating (tropical)	prostrate, floating stems with thick leaves 2 to 3 in. across; pale yellow flowers borne freely throughout summer
Marsilea mutica (water clover)	floating (hardy)	attractive clover-like leaves with purple markings
Myriophyllum aquaticum (water-feather)	floating (hardy)	feathery leaves in whorls along the stems
Nelumbo 'Momo Botan' (hybrid lotus)	upright (hardy)	fully-double carmine flowers on compact plants
Nelumbo 'Mrs. Perry D. Slocum' (hybrid lotus)	upright (hardy)	fully-double rose-pink flowers which fade to creamy-yellow
Nymphaea colorata (pygmy water lily)	floating (tropical)	a charming water lily with bluish-purple flowers throughout summer; easily propagated by the small tubers
Nymphaea x *Helvola* (hybrid water lily)	floating (hardy)	brown-blotched leaves complimented by numerous canary-yellow flowers opening in mid-afternoon
Nymphaea 'Joann Pring' (hybrid water lily)	floating (hardy)	a true dwarf with soft pink flowers
Nymphoides cordata (water-fringe)	floating (hardy)	water lily-like leaves mottled reddish-brown producing bright yellow "fringed" flowers
Nymphoides indica (water snowflake)	floating (tropical)	similar to *N. cordata* bearing pure white flowers with yellowish centers
Pistia stratiotes (water lettuce)	free-floating* (tropical)	rosettes of grooved, shell-like leaves 4 to 8 in. across
Pontederia cordata (pickerel weed)	upright (hardy)	stems to 36 in. bearing broadly heart-shaped leaves and 3 to 6 in. spikes of purple flowers
Sagittaria sagittifolia (arrowhead)	upright (hardy)	sagittate leaves on stems 36 to 40 in.; white flowers with purple blotches
Salvinia auriculata (floating moss)	free-floating* (tropical)	small, hairy leaves on floating stems to 10 in. long; provides a good place for fish to breed
Saururus cernuus (water dragon)	upright (hardy)	erect stems to 36 in. bearing pointed, heart-shaped leaves terminating in 4 to 12 in. spikes of white flowers
Typha minima (dwarf cattail)	upright (hardy)	very narrow rush-like leaves bearing small cattails
Zantedeschia aethiopica (calla lily)	upright (tropical)	broadly heart-shaped leaves producing large, white, solitary flowers

*Free-floating plants do not require planting in soil; however, they must constantly be kept in water.

PLANT SOURCES

Lilypons
5300 Scenic Road, P.O. Box 10
Lilypons, MD 21717-0010
(301) 874-5133

Slocum
1101 Cypress Gardens Road
Winter Haven, FL 33880
(813) 293-7151

William J. Tricker & Sons
74 Allendale Avenue, P.O. Box 398
Saddle River, NJ 07458
(201) 327-0721

Van Ness Water Gardens
2460 North Euclid Avenue
Upland, CA 91786
(714) 982-2425 or 981-5045

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Bob Hays holds an Associate Degree from Temple University Ambler Campus in horticulture and a B.S. from North Carolina State University in ornamental horticulture and floriculture. He is currently enrolled in the Longwood Program in Public Horticulture Administration. He has interned at the Scott Arboretum of Swarthmore College and at the Chicago Botanic Garden.



photos by Sam Morris

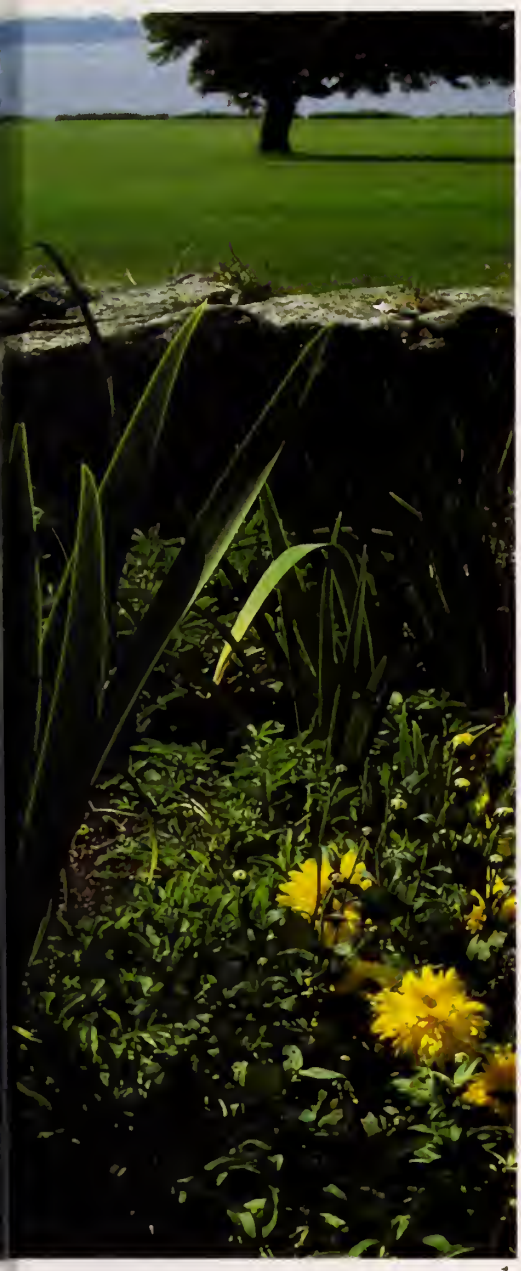
BLITHWOLD GARDENS & ARBORETUM

The once private estate always had a public heart

by Julie Morris

Sixty years ago Ernest "Chinese" Henry Wilson and Alfred Rehder visited Blithewold in Bristol, Rhode Island, and to the owners' delight these eminent plantsmen from the Arnold Arboretum were awestruck by the variety of plants they found. Writing to her daughter about the visit, Bessie McKee said, "They were frankly amazed to find so lovely and interesting a place here and kept saying, 'Why you have [...an] arboretum here; we never dreamed there was a place like this!'" The object of their visit had been to see the Chinese toon tree, *Cedrela sinensis*, one of only three known plantings in the country, and the first to bloom.

Blithewold may have been a private estate for over 75 years but it has always had a public heart. The owners shared their love and enthusiasm for the gardens



1.

1. The North Garden overlooks Narragansett Bay.

2. *Echinops* blooming in the North Garden

3. Boats passing by on the bay see this view of the house framed by ten acres of lawn.



2.



3.

and trees with family, friends, famous botanists, horticulturists and devoted amateur gardeners. There has been a generosity of spirit surrounding those associated with Blithewold perhaps due partly to the physical plan of the property itself. The estate overlooks Narragansett Bay and Bristol Harbor. The 33 acres are laid out in an informal style with some more formal elements in the overall design. Visitors are drawn to the cool green of the bosquet (woodland) where lindens, Norway maples and European ash shade the woodchip paths bordered by vinca and English ivy. They appreciate the solitude of the water garden as they take walks that end up invariably along the rocky shoreline.

From my desk in the 45 room mansion I look out over the wide expanse of lawn to the Bay where local fishermen dig for

continued

photos by Sam Morris



1.



2.

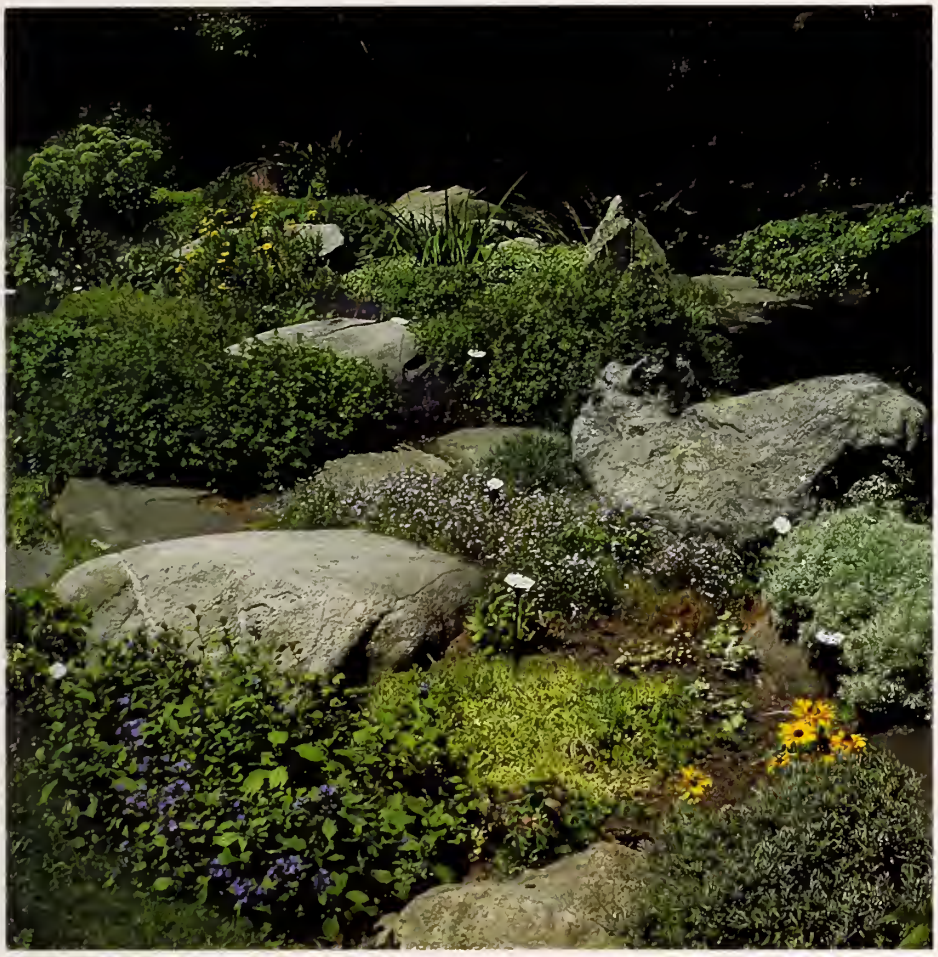
1. The water garden, only a few feet from Narragansett Bay, is a favorite spot for visitors to Blithewold.

2. Volunteers maintain the cutting garden where flowers are grown throughout the season for arrangements in the house.

3. The rock garden in early autumn with leadwort, dahlberg daisies, coreopsis and *Lobelia* 'Cambridge Blue' in bloom.

quahogs almost every day of the year. It is easy for us to understand how the natural charm of the place led the Van Wickle family from Hazleton, Pennsylvania to buy the property they named Blithewold as their summer residence in the last years of the 19th century. Augustus Van Wickle had graduated from Brown University in 1876 and was in the coal mining business in Pennsylvania. Both he and his wife, Bessie Pardee Van Wickle, had friends in Bristol, Rhode Island, whom they visited often during the summers. The shoreline along the property was an ideal place to moor the Marjorie, their new steam yacht, purchased from the Herreshoff Company in Bristol in 1895.

Good gardening had been going on at Blithewold for many years before the Van Wickles purchased the property. The former owner, John Gardner, had planted many of the exotic trees that so excited the visitors from the Arnold Arboretum in 1926; as well he had planted what has been always called the enclosed garden: a large lawn area surrounded today by several different kinds of chamaecyparis, cryptomeria, rhododendron, spruce and hemlock. Weeping sophora, thujopsis and taxus species are planted near the edges of the enclosed garden, but the centerpiece is our giant sequoia. The 81-ft. tall



3.

tree is the largest of its kind east of the Rockies and draws the attention of most of our visitors. The sequoia was planted in 1911, after living for 10 years or so in a greenhouse in Prospect Park in New York. John DeWolf, who laid out the grounds for the Van Wickles, was in charge of Prospect Park and sent the sequoia to Blithewold when it outgrew its greenhouse space. The tree flourished and more than a dozen other sequoias grow in other areas on the property today.

Mr. Van Wickle died in 1898 and his widow married William McKee in 1901. With her two daughters, Marjorie and Augustine, the McKees continued to spend summers at Blithewold. The original house, built in 1896, burned to the ground in 1906 and was immediately replaced by the present mansion. The house was designed by the Boston firm of Kilham and Hopkins and was modeled after an English country manor. The interior is colonial revival with views of the Bay from almost every spot in the house. All the rooms on the ground floor open to the outdoors onto terraces and porches overlooking the water and gardens. The outdoors was important to the entire family. Old photographs show family and friends enjoying lawn tennis, walks along the pathways that circled the whole property, picnics at the water's edge, sailing, water skiing, kyaking and swimming. Guest books kept during all the years the house was owned by the family are filled with poems and grateful thanks written in appreciation of happy sojourns at Blithewold. Many names appear year after year and would be familiar to PHS members, since so many family members and friends came from Pennsylvania.

It was through the farsighted planning of Marjorie Van Wickle Lyon, who bequeathed the property to the Heritage Foundation of Rhode Island, that Blithewold is enjoyed by so many people today.

Our history as a public garden began when Mrs. Lyon died in 1976 at the age of 93. Blithewold opened to visitors in 1978 under the supervision of Donald Buma, who was director of the property until three years ago when he left to join the staff at Longwood Gardens. Mark Zelonis, of the Longwood Graduate Program, became director in 1983 and with a small staff of two full-time employees and several part-time and seasonal workers maintains the mansion and grounds. Volunteers help with all our projects and are invaluable to the success of all we undertake. Blithewold is the only public garden and arboretum in Rhode Island, and one of only a handful in the country, that is in a seaside location.

The house was left with most of its furnishings, and the enormous collection of family photographs has helped us document the changes in the gardens over the years. Hurricanes, ice storms, availability of labor and World War II contributed to some major differences in the grounds as they once were. Two of the hurricanes over the past 50 years devastated the collections of trees and shrubs. Paths washed out and nature changed the shoreline. Just this past year, Hurricane Gloria knocked

Blithewold may have been a private estate for 75 years but it has always had a public heart.

down a score of trees and damaged many others. Some trees like the *Albizia julibrissin* snapped like broken matches. Lightning thins out the bosquet from time to time. Two years ago an 80-ft. hemlock was split from top to bottom by lightning, which also damaged some nearby trees. However, a planting of *Cimicifuga* that had never bloomed before suddenly burst forth in the sunlight gained by the missing tree.

Author and family friend Alice "Jill" DeWolf Pardee wrote *Blithewold* (published in 1978), a history and an appreciation of the property and family. Her book has been a great help to our tour guides and other staff members. Over the past few years we have discovered piles of garden notes kept by Mrs. McKee and her daughter Marjorie Lyon. Most of the notes are on scraps of paper, backs of envelopes and invitations and scribbled along the margins of garden articles. This past summer, an intern spent hours putting the puzzle together. Gretchen Sanders, who was sponsored by *Yankee Magazine* and The National Trust for Historic Preservation, spent the summer sorting out what records we had on these scraps of paper, organizing the photograph collection chronologically and making garden plans that will help us replant and restore some of the garden areas in the style that represents Blithewold when it was at its best, during the first 35 years of this century.

Other research has led to our finding the rest of our once ornate greenhouse and conservatory complex. Labor and fuel costs during World War II led to the decision to remove most of the greenhouses. They were sold to a local grower who built a shed over the greenhouse sections but never reconstructed the greenhouse and conservatory. We have been able to get all the pieces back and hope that one day the palm house will reflect its earlier glory when it was first built, just after the turn of the century. Diligent searching by another

continued



photo by Sam Morris

Franklinia alatamaha blooms on the east side of the house. Some years the tree flowers throughout the autumn until mid-November.

student intern found our greenhouses pictured in a Lord and Burnham catalog published in 1910.

Over the past several years the number of visitors has increased by thousands. Time was when our guides were delighted to have 10 or 12 people a day. We are still far away from attracting the nearly half a million visitors each summer who seek out the "summer cottages" owned by the Preservation Society in nearby Newport. We did, however, have over 15,000 visitors to Blithewold during 1985. The grounds are open daily and the house is open May through October and for two weeks at Christmas.

It may sound as if storm damage and piles of old greehouses make the property look like a scene from *Elephant Walk* but that is far from the case. The gardens and trees that Bessie McKee and Marjorie Lyon loved so dearly are maintained by staff and volunteers who work long and hard to do justice to the earlier visions of the previous gardeners. It is fun to go through seed and nursery catalogs to order some of the same varieties of plants that intrigued Bessie and Marjorie over the years. In front of me just now is a copy of a plant order sent by Bessie McKee in 1909 to landscape designer John DeWolf. Imagine being able to buy lilacs and spiraeas for 40 and 50 cents or eight foot white pines for $2.50! Each autumn before leaving for the winter in Boston Bessie made notes for the following spring. In 1912 she planned to try kiwi vine on the north porch, *Tamarix* in the water garden, to make a chart of all the existing trees and plant a beech tree on the northeast side of the house. The list has over 50 suggestions for the next season with "uproot honeysuckle in certain places" written in very dark ink! Uprooting honeysuckle also appeared on Marjorie's lists 40 years later, along with her wish to label every tree and shrub on the place. Her scraps of notes contain many lists of names sent to the Arnold Arboretum, and notes from Donald Wyman, who helped with the identification of many of the plants at Blithewold. One of our plantings of littleleaved linden, *Tilia cordata,* appears in a photograph in his book, *Trees for American Gardens*.

We all feel the presence of Marjorie Lyon in the gardens and although I never met her or saw her zoom around the grounds in her golf cart at breakneck speeds even in her ninetieth year, we are indebted to her for leaving Blithewold to be enjoyed by so many people.

Today we enjoy the North Garden with its blue and yellow perennials set against the lawns and Bay beyond. One day the North Garden may again have the beds and formal paths of its original plan set in a more manageable style than the era when 11 people took care of the gardens. The rose garden with its moongate is a natural entrance to the property, and we hope to take advantage of its design to provide our visitors with a graceful entrance to the rest of the gardens.

The cutting gardens are planted with perennials and annuals that are used by our talented flower arranger, Ann DeLeo, to decorate the house. From early June when the peonies, columbine, lupine, foxglove and astilbe bloom, until the late fall and the last of the phlox, asters and Japanese anemones fade, these gardens are full of color. A massive grove of the yellow groove bamboo, *Phyllostachys aureosulcata,* planted originally to provide bamboo stakes for the gardens, is marching across the lawn next to the cutting gardens.

Our rock garden is a glistening gem in the landscape. The Bay is within a few yards of the garden and the afternoon breezes make the area a favorite spot on hot summer afternoons.

The water garden next to the rock garden is dominated by a giant *Salix alba,* the white willow whose branches fall gracefully over the pond and small turf bridge with stone walls. Garden seats and benches scattered around the property invite people to take some time to enjoy this unique setting.

From early spring when daffodils fill the bosquet until the last seed heads on the ornamental grass plantings turn brown, there is something to see in the gardens. The autumn blooms of the *Franklinia alatamaha* have lasted until nearly Thanksgiving some years, and the bright red twigs of the red osier dogwood shine on snowy days.

Over the past few years we have labeled nearly 2,000 trees and shrubs and hundreds of the herbaceous plants. We all feel the presence of Marjorie Lyon in the gardens, and although I never met her or saw her zoom around the grounds in her golf cart at breakneck speeds even in her ninetieth year, we are indebted to her for leaving Blithewold to be enjoyed by so many people.

Garden making is difficult no matter what the "easy maintenance" advocates proclaim. Making a public garden from a private garden without spoiling the original integrity and intent is a tremendous responsibility. We must be aware of public safety and access, parking lots and bathrooms and, of even greater importance, the fragility of the flowers and trees left in our care. We are all new in the field, really, when one considers that most estates that have "gone public" have done so within the past 25 years. Hardly enough time for a single tree to grow, yet we must make decisions about our gardens that will ensure their future barring any natural forces that are beyond our control, while carrying through the wishes of those people like Marjorie Lyon, who had the foresight to understand the importance of a place like Blithewold to once and future garden lovers.

An invitation to visit Blithewold Gardens and Arboretum

Blithewold members share a special affinity with Pennsylvania Horticultural Society members. Our members receive *Green Scene* as part of their membership privileges, and they have visited Philadelphia area gardens and the Philadelphia Flower Show. We welcome in return visits by PHS members.

The grounds are open daily from 10 am to 4 pm. The mansion is open for tours from May through October and for two weeks at Christmas. Admission fee $4.00 for house and grounds; $2.00 for self-guided grounds tour. Special group rates available. Ferry Road, Bristol, Rhode Island 02809. Phone: 401-253-2707.

Mark Zelonis
Director

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Julie Morris has been on the staff at Blithewold Gardens and Arboretum since 1980; she has been the full-time horticulturist for the past three years. Julie was horticultural librarian at PHS from 1970-1976, and travels down from Rhode Island to exhibit each year in the Philadelphia Flower Show.



photos courtesy Chapin Watermatics

From the turn-off valve at the garden edge, the ¾-in. main supply hose (not pictured) lies on top of the ground the length of the garden. The ⅛-in. supply tubes run off the main hose into the wickets, which hold the nozzle heads upright as shown. The spray is adjusted by turning the nozzle head.



Spray stakes, supply hose and nozzle.

SAVE TIME, ENERGY & WATER

by Frannie Cullen

As my energies, joints and muscles have changed with time, so too has my enthusiasm for a herbaceous border. But I am afraid that Eddie Cullen's has not waned. He loves it and has lots of ideas. So when I was in the West one spring hugging my grandchildren, he was home moving some box bushes that had grown too large. They were at each end of my garden. When I returned somehow my herbaceous border had grown 10-15 feet!

With the promise of a spigot at the foot of the garden for easier access to the water, I proceeded to fill in the gaps, not without a groan or two. It was still a lot of time, energy and water.

Early that summer we were invited to Mt. Desert Island in Maine and were taken to visit the small nursery that provides most of the plants and shrubs for a great many of those lush, beautiful, bountiful gardens on the island. One man and his wife ran and tended this small nursery all by themselves, besides doing a great deal of landscaping for everyone. An astonishing number of seedlings, plants and shrubs were all potted and packed close together between huge long beds of railroad ties. Everything was well mulched. Two large plastic greenhouses covered rows of beds on each side. I was incredulous.

"How on earth do you have time just to water all this?" I asked the proprietor.

"Oh, that's easy. I'll show you." And with that he turned on a faucet by one bed and suddenly little pinwheels of fine spray sprang up all over the plants. The spray came from tiny hoses with a nozzle on each end which, in turn, was supported between two wire stakes almost like a narrow croquet wicket. These can be moved about just by picking up the wicket and placing it where desired, within the radius of the main supply hose to which the small hose and wicket are connected.

It was beautiful. "That's just what I need. Can I do this too? Where can I find it? Is it expensive?" With all the necessary data in hand, and a thank you, we bid good day. When we returned to Devon, Pennsylvania, we immediately pursued the project.

To order the spray stakes and hose, we needed to know the length and depth of the garden, how much water pressure we had to the house (obtained from the water company), and, most difficult, we had to snare the plumber to put in the underground water line to the garden edge with a turn-off valve where the main supply hose starts.

We phoned Chapin Watermatics, Inc., a supplier to greenhouses and horticultural supply houses, and ordered the amount of main supply hose and spray stakes we needed. They advised us. Delivery was prompt, and price very reasonable. The cost for 200 ft. of plastic pipe, 25 spray stakes and the other necessary attachments was approximately $125; the only other real expense was the plumber.

Once this is all done, and material at hand, the plastic main supply hose is placed on top of the ground and connected to the faucet at the garden edge. If needed, you can run extensions from the main supply hose with a "T" or "Y" fitting (included). We did this at one end as the garden is much wider there, now backed with new shrubs. You insert the ⅛ in. supply tubes into the ¾ in. main hose at desired intervals. It is self-sealing. This is done with a special punch supplied by Chapin, but be sure to order it along with hose end stops ($2.00) or plugs. What is so wonderful, as I mentioned earlier, is the supply tubes are flexible, so once in, you can move them at any time in and around your plants.

The spray stakes that hold the supply tubes come in heights of 10, 16, 24, 30, and 36 in. Of course, you have to push them down into the ground to keep them upright so you lose some height. But, as I did not want them to be too visible, and also felt that closer to the ground would give the plants more water, losing less to the atmosphere, we installed the shortest stakes.

The system really works. Last summer was a real test. With the garden mulched, it took only a few minutes of sprinkling to keep the plants happy and blooming. We had time left to spend on other spots of the garden. No longer did we have to haul long, heavy hoses, and we used *very* little water. And none was wasted. Try it!

▼ ▼ ▼

Chapin Watermatics, Inc. sells these supplies for watering commercial bedding and nursery plants, and for use in commercial greenhouses. The system is available through horticultural supply houses.

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Frannie Cullen was administrative assistant to Ernesta D. Ballard at PHS from 1964 to 1971. She was in charge of PHS hospitality and members' activities. Upon retiring, she served on the PHS Council as chair of the Members Committee and the Flower Show Preview Dinner. At present, she is a member and past president of both Four Counties Garden Club and Philadelphia Unit, Herb Society of America.

Color at Ashland Hollow

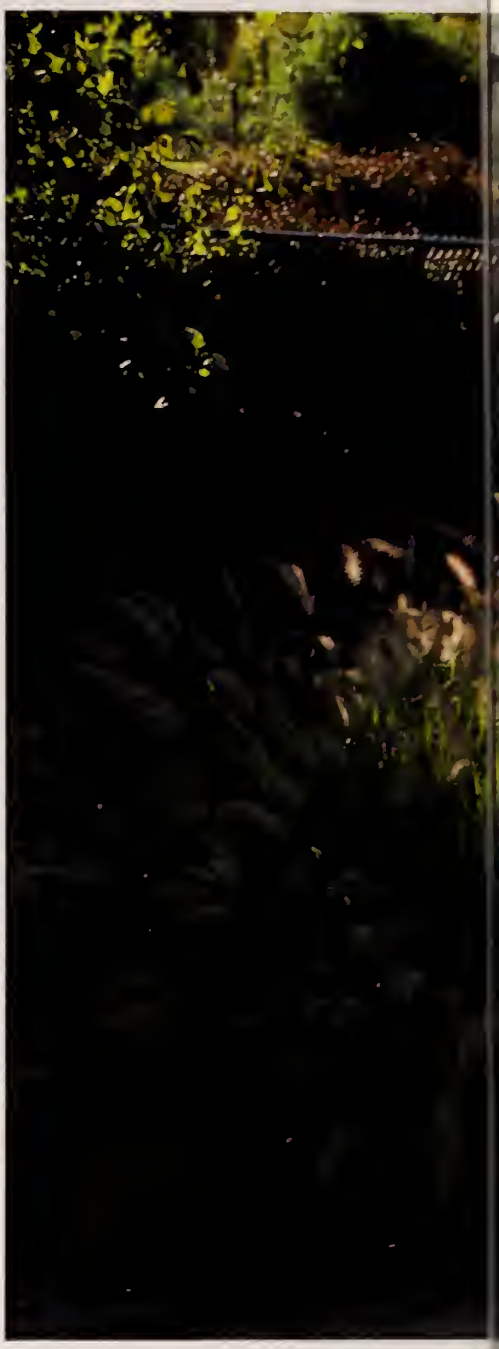
by Bonnie J. S. Day

Maroon-wine, chartreuse, cantaloupe, true blues. These enticing hues come from the palette of landscape architect William H. Frederick, Jr., a dyed-in-the-wool lover of plants living in Hockessin, Delaware. There, on the 17 acres of his garden Ashland Hollow, Frederick is an artist, creating on a huge canvas and using nature's own marvelously varied palette. His artist's tools are a discriminating eye for color and a wide-ranging vocabulary of plants. His work, what he calls a garden in the making, is a rich and joyous composition, sometimes sensuous, sometimes subtle, always exuberant.

Many people think of color strictly as a sort of pleasing optical filler: red, blue, green, what goes with what. Color is more than that for Bill Frederick; it works much harder, lending structure, body, and ornament to the garden.

Color provides structure, the framework for a design. Background color, the walls or grounds surrounding a garden, sets the boundaries of the garden and becomes part of the composition. Stone walls, silvery-gray rough textured wood, tan stucco and green hillsides are his favorites. Color within the garden defines the shape it takes, too. In the Dark-green, White and Gray Walk, created with early evening strolls in mind, a narrow, dark-green rib of dwarf Japanese yew *(Taxus cuspidata* 'Nana') stretches along the linear path, tracing its length in the soft dusky light and drawing the visitor through.

Color defines the shapes and spaces that fill out the structure. Masses of plants in several complementary color combinations enliven the built-in beds of the Patio Garden in summer. A wildly colorful carpet composed of groups of orange-red, magenta, salmon, soft pink and brick-red azaleas *(Rhododendron* x Gable, *R.* x Glendale and *R.* x Kurume hybrids) and accented by a small clump of shocking pink azaleas (*R.* Glendale 'Chloe') clings to the curve of a hill above the house. Blue *Iris cristata* hug the edges of the planting, making a border for the carpet.



Color is ornament and accent as well. Frederick likes to use a dash of color unrelated to the overall composition – say, the orange-scarlet of *Crocosmia* in a garden dominated by blue, purple, and soft shades of orange. It serves to point out important features of the design and emphasizes color relationships established there. The amount of unrelated color



photo by William H. Frederick, Jr.

Serendipity in the form of a bright yellow volunteer mullein *(Verbascum,* Harkness hybrid) punctuates the Studio Garden of William H. Frederick, Jr. in June. In the foreground, a typical combination of colors: *Ageratum* 'Blue Blazer' (a blue which doesn't photograph well), cantaloupe daylily *(Hemerocallis* x 'Little Cobbler'), and an accent of shocking pink *Lythrum virgatum* 'Dropmore Purple.' Later in the season, orange-scarlet crocosmia *(Crocosmia pottsii)* will replace the mullein, acting as a focal point and color accent in the garden.



photo by William H. Frederick, Jr.

is just as important as the color itself, he says, for nearly any colors can be used together if the proportions are right.

Frederick is as unconventional in the colors he employs as he is in the way he uses them. He believes we need to use strong colors in our gardens to strike a balance with the stressful, fast-moving society we live in. Maroon-wine, chartreuse, and blue are his favorite "blender" colors, not the traditional white. For him white pokes holes in the composition, and is better used as a focal point. Each blender color serves as a theme in his designs, an anchor for the color direction the garden will take and a foil for the rest of the colors that are part of the composition.

Pink-lavender-purple or orange-yellow-red are the color directions Frederick employs. Plants featuring colors in one of the directions are grouped in carefully worked out combinations with their blender. On the Wisteria Walk in late May, shrub roses in shades of wine, rose, and pink are blended with the deep blue accent of one clump of *Iris sibirica* 'Dreaming Spires.' The result is vivid and satisfying, a solid jolt of color almost tangible in its effect. Not all of his compositions are as electric, however. The Stream Valley Garden, whose focal point is a pyramidal island covered with moss, liverwort, and *Selaginella,* is a study in shades and textures of green. It is peaceful and cool, and in late

continued

Maroon-wine barberry *(Berberis thunbergii* 'Crimson Pygmy') echoes the curve of the swimming pool, a layer of plant-created structure for this garden. The barberry blends well with the graceful foliage and apricot-tan inflorescence of reed grass *(Calamagrostis epigeous),* and fountain grass *(Pennisetum alopecuroides),* whose purple bottle-brush flowers are tinged with pink.

summer the scarlet flowers of the cardinal flower *(Lobelia cardinalis)* growing on the stream's steep banks play counterpoint to the idyllic calm.

What matters is the combination of colors. Very few plants stand on their merits alone: Bill Frederick thinks always in terms of the effect that they will have on each other. He has an uncanny ability to put colors together in ways that many of us would never think of, to create combinations of plants that have synergistic effect upon each other. He works hard at getting the combinations exactly right, too. Many of his garden compositions evolved after experimenting for several seasons; all are open to improvement as new plants and cultivars are found. Frederick makes all



photo by Dick Keen

The blender color blue often comes in the form of a groundcover. In the Studio Garden, *Cynoglossum* 'Dwarf Firmament' (foreground), blue fescue *(Festuca ovina* var. *glauca)* and blue oat grass (Helictotrichon sempervirens) grow with Coleus 'Chartreuse.' The pink-purple spikes of *Liatris spicata* 'Kobold' accent surrounding color combinations which feature dark purple, purple-blue, very light blue, chartreuse, cantaloupe, and coral. ▶

A crazy quilt of salmon, pale pink, mauve, and brick red azaleas blanket the hillside in William H. Frederick, Jr.'s Stream Valley Garden. From the foreground, the azaleas are *Rhododendron kaempferi,* a salmon seedling, *R.* 'Pink Pearl,' *R. obtusum* 'Amoenum,' and *R.* 'Stewartsonianum.' ▼

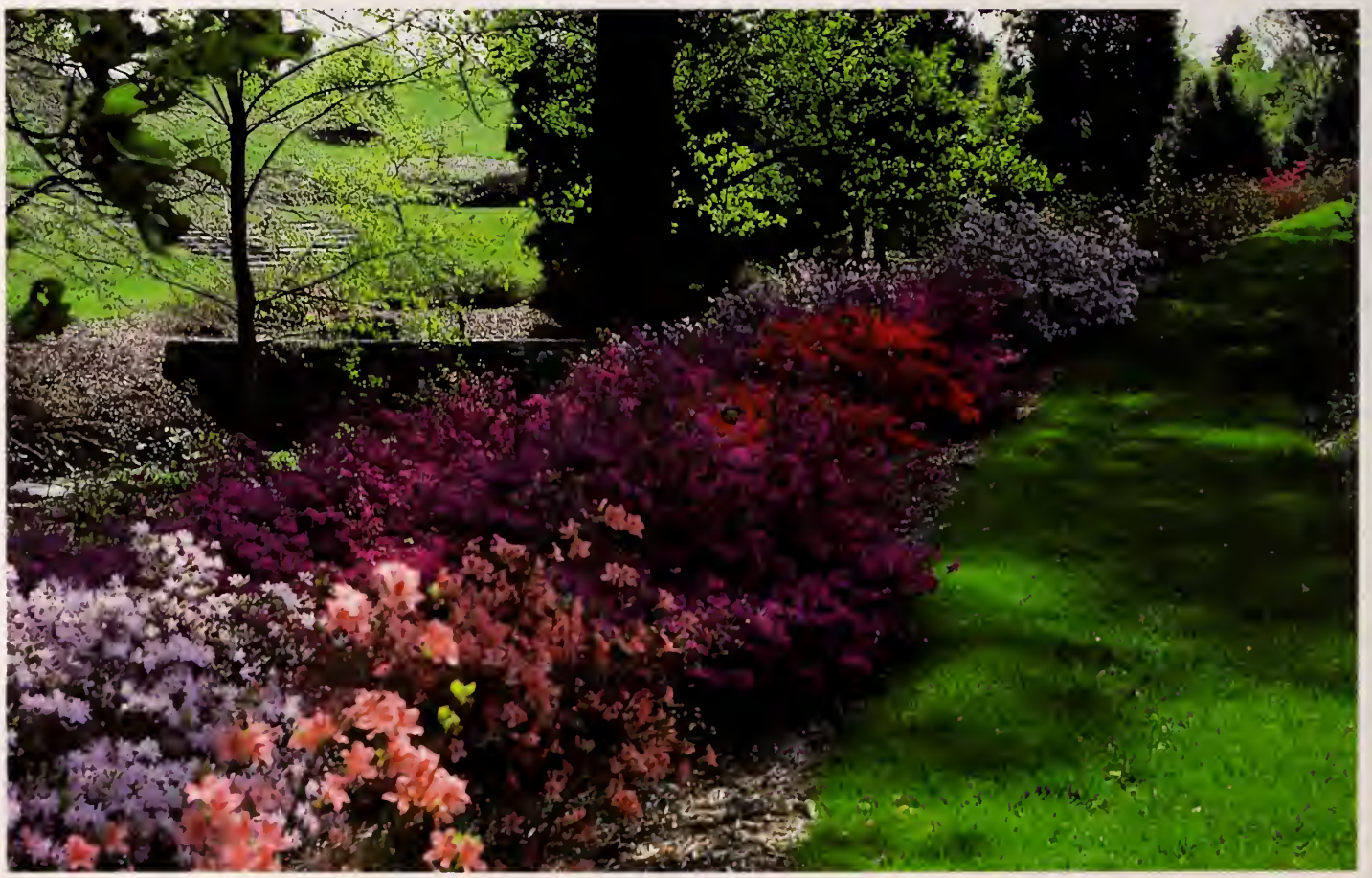


photo by William H Frederick Jr



photo by William H. Frederick, Jr.

The chartreuse foliage of striped dwarf bamboo *(Arundinaria viridistriata)* illuminates a shady grape arbor bordering the swimming pool. Coral blossoms dangling, trumpet vine *(Bignonia* x *tagliabuana* 'Madame Galen') grows up to a section of the arbor left open to admit more light. *Impatiens* 'Elfin Red' blooms in the foreground. The composition is completed in a bed to the right of this picture, with *Coleus* 'Chartreuse' and a focal point of white spider flower, *Cleome* 'Helen Campbell.'

Blender Color Plants

Maroon-wine	
Berberis thunbergii 'Crimson Pygmy'	Barberry
Prunus x *cistena*	Purple-leaf sand cherry
Prunus cerasifera 'Thundercloud'	Purple-leaved plum
Fagus sylvatica 'Riversii'	Rivers' European beech
Acer palmatum 'Bloodgood'	Bloodgood Japanese maple
Acer palmatum 'Dissectum Ever Red'	Dissectum Ever Red Japanese maple
Lysimachia ciliata (form with wine-colored foliage)	Loosestrife
Rose rubrifolia	Rose, brier
Cotinus coggygria 'Pupureus'	Purple-leaf smoke tree
Chartreuse	
Cornus florida 'Hohmans Gold'	Golden variegated dogwood
Cornus florida 'Rainbow'	Flowering dogwood
Arundinaria viridistriata	Striped dwarf bamboo
Euphorbia epithymoides	Cushion spurge
Filipendula ulmaria 'Aureo-variegata'	Queen-of-the-meadow
Milium effusum 'Aureum'	Bowles' golden grass
Chrysanthemum parthenium 'Aureum'	Golden-feather feverfew
Lysimachia nummularia 'Aurea'	Moneywort
Coleus 'Chartreuse'	Flame nettle
Blue	
Scilla siberica	Siberian squill
Endymion hispanicus	Spanish bluebell
Ageratum cultivars	Flossflower, pussyfoot
Festuca ovina var. *glauca*	Blue fescue
Helichtotrichon sempervirens	Blue oat grass
Pulmonaria angustifolia	Lungwort
Ceratostigma plumbaginoides	Leadwort
Oxypetalum caeruleum	
Symphytum caucasicum	Comfrey

color decisions while the plants are blooming, whether he intends to plant then or not. When he is choosing plants for a design he carries samples of leaves, flowers, twigs – whatever is important – and compares them with other candidates until he finds the perfect marriage of hues. He credits this thoughtful matchmaking with the exciting unified effects his gardens have. No horticultural "zoos" or collector's collections for him! Every plant has a part to play, but what shines through is his undeniable love of plants and joy in their beauty.

"Perhaps not everyone enjoys color as much as I do. For me, it is a biological necessity," he affirms. Color is always present at Ashland Hollow, glowing and fading in different parts of the garden all year long. But "color is a very personal thing," says Bill Frederick. "Mine is not the only approach to color in the garden: it is more important to experiment, and find what pleases you most."

●

Bonnie Day is a writer and horticultural consultant from Wilmington, Delaware.

Wilmington Garden Day

Ashland Hollow will be one of the gardens on display during Wilmington Garden Day on Saturday, May 3, 1986.



All photos courtesy of Winterthur Museum

photo by Valencia Libby

DR. STOUT BREEDS THE MODERN DAYLILY

Hemerocallis 'Manchu'

a graduate student's curiosity leads to advances in color and form

by Lonnie Dobbs with Valencia Libby



photo by Lonnie Dobbs

Hemerocallis 'Mikado'

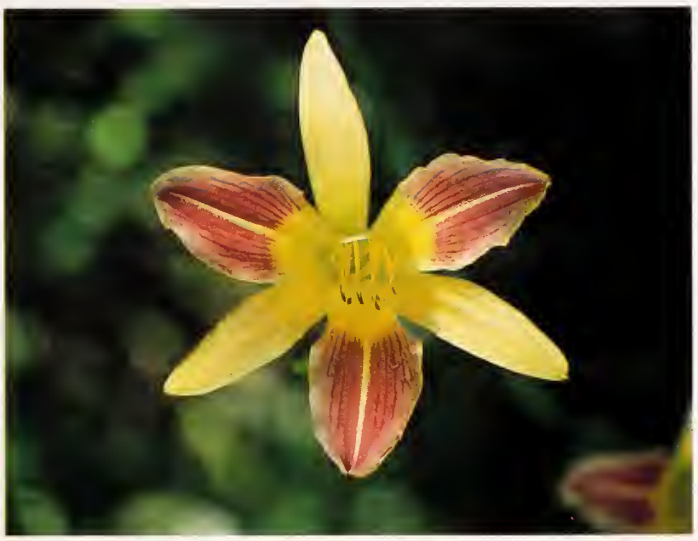


photo by Lonnie Dobbs

Hemerocallis 'Bicolor'

Before 26,000 daylily cultivars had been registered by the American Hemerocallis Society, before 800 new names were added to this list each year, and well before the Hemerocallis Society had even been founded, Dr. Arlow B. Stout, chief botanist for the New York Botanical Garden (1911 to 1948), had produced the first race of modern hybrid daylilies. Beginning in the 1920s, he worked intensively with about 17 species of *Hemerocallis* to create hybrids with improved ornamental characteristics. Over the next 35 years, he continued to collect, hybridize, observe, and evaluate over 100,000 seedlings from which he finally selected less than 100 plants he believed to be outstanding varieties worthy of introduction. Unlike today's hybrids, Dr. Stout's named cultivars resembled the wild species with tall, graceful flowers held well above the foliage. They displayed, however, a range of floral colors, patterns, and forms previously unknown in cultivation and bloomed for longer periods of time throughout the season.

Though daylilies have been grown in American gardens since the late 18th century, only two forms were commonly seen and both of these were species: *Hemerocallis fulva,* the tawny orange daylily, which has naturalized along our roadways, and *H. lilioasphodelus (flava),* a lemon-yellow, sweetly fragrant old-fashioned favorite. In 1892, George Yeld, an English nurseryman, introduced the first hybrid daylily, named 'Apricot' for its unusual peach-pink coloration. Europeans first led the field in daylily hybridization until the advent of Stout's research. His work ushered in a new era in the history of this popular garden plant and laid the foundation for future hybridizers to develop today's array of daylily cultivars.

What became a major contribution to the horticultural world began with the curiosity of an undergraduate student. While in his early twenties, Dr. Stout, then a student of botany at the University of Wisconsin, noticed that the daylilies in his garden never set seed. The observation puzzled him and several years later, having completed his Ph.D. in botany and received the appointment as director of laboratories at the New York Botanical Garden, he was able to search for an explanation. Obtaining divisions of the daylily clone from his Wisconsin garden, he began to study the plant's reproductive system. His research led him ever deeper into studies of plant sterility, self- and cross-pollination, interspecific crosses, selective breeding, and hybridization. He gathered *Hemerocallis* species from collectors and explorers primarily in Europe and the Orient for his work, recording the receipt of over 50 shipments of living plants and seeds between 1920 and 1942.

At first the crop of hybrid daylily seedlings was simply a by-product of his botanical research; however, Stout soon realized the commercial potential of his crosses when left to flower and mature. He began to evaluate the ornamental attributes of his seedlings and to select plants for further evaluation, propagation, and distribution to the public. The New York Botanical Garden offered these to commercial nurseries, but only Bertrand H. Farr of the Farr Nursery Company, Weiser, Pennsylvania, was seriously interested in his project. Farr's nursery carried the first of Stout's named cultivars and continued to be their sole distributor for many years.

By 1930 Stout had established a system of selective breeding by which he could obtain the most desirable new forms of daylilies. Using as many as three to five generations of parent stock and growing on his seedlings under controlled conditions for at least three years, he was able to produce major advances in the daylily's garden merits. Stout's hybrids displayed the oranges and yellows of the species as well as the first true reds, pinks, buffs, and peach tones. In 1934, for example, he introduced 'Theron,' the first true red daylily. Later he released 'Charmaine,' a clear rosy pink, 'Bertrand Farr,' a pastel peach, and 'Afterglow,' an apricot buff. Working with *H. fulva,* Stout bred daylilies with a colored "eye" or zone of darker coloration on the petals above the throat of the flower. One such example was his 'Mikado,' which had golden yellow petals with a mahogany eye. He also developed many bicolored flowers (with petals and sepals of different colors) such as 'Caballero' and 'Bicolor,' both of these displayed bright yellow sepals and vermilion petals.

In the area of new flower forms, Stout was the first hybridizer to produce cultivars with double flowers, ruffled petals, wider than normal petals, and twisted petal tips. His cultivars 'Soudan,' 'Serenade,' 'Dauntless,' and 'Wau-Bun' were some of the first named hybrids to display these attractive features. He also succeeded in producing daylilies with an increased number of flowers per flower stalk, an extended period of bloom, and better dwarf and giant habits of growth. These Stout cultivars became the basis for today's giant modern daylilies. Stout's hybrids have a delicacy and elegance of form, a simplicity of color range, that may seem dull in comparison to the newer, flashier hybrids but nonetheless have withstood the test of time and are coming back into favor as desirable garden plants.

continued



Lonnie Dobbs

Hemerocallis 'Allen-a-dale'



Lonnie Dobbs

Hemerocallis 'Afterglow'

Winterthur Gardens in Greenville, Delaware is one of the few public gardens that still has a display collection of Stout's cultivars. One large planting of *Hemerocallis* located near the Crowninshield Research Building contains several of Stout's first cultivars to win recognition and a wide variety of his best selections. The collection was developed by that expert plantsman and garden connoisseur, Henry Francis du Pont, who first contacted Stout in 1931, when, after reading Dr. Stout's "Notes on New Hybrid Daylilies" in the *Journal of The New York Botanical Garden,* he asked for a source of two cultivars, 'Mikado' and 'Cinnabar,' described in the article. Knowing that the Farr Nursery's stocks were limited, Stout sent him divisions of these cultivars and of 'Vesta.' This seemed to be the beginning of Winterthur's substantial collection. Mr. du Pont appreciated the long-lived, undemanding, and decorative nature of daylilies and was known to have commented during the Depression that if he had ever had to cut down on the maintenance of his flower gardens, he would plant them up with daylilies and a few other perennials. He preferred to arrange daylilies in long drifts of a single variety and a single color, feathering the edges of the drifts to create one large planting. He noted in his journal in 1955, "I have a great many varieties of Dr. Stout's *Hemerocallis* which I have propagated from one original plant of each. I want these varieties increased until there is a large block of each kind so as to make an important planting somewhere."

The massive planting du Pont envisioned was created soon after he penned these thoughts. Composed of over 70 varieties of daylilies, a large number being Stout's cultivars, the bed lines the main Museum Drive near the Crowninshield Building. It is the largest collection of Stout's daylilies outside of the New York Botanical Garden. In the summer of 1984, Winterthur initiated a project to identify and preserve the remaining Stout cultivars in this area and has tentatively identified 34 of a possible 59 named cultivars. These form a singular display of bright, graceful flowers that blend well during the summer months with the naturalistic landscape of Winterthur. Lasting from June until late August, they are well worth a visit.

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Stout Daylilies at Winterthur

Cultivar Names	Color	Height	Season	Availability*
Allen-a-Dale	dark red	48 in.	July	no
Afterglow	apricot buff	36 in.	July-August	no
Autumn Minaret**	orange yellow	66 in.	August	yes
Bertrand Farr	pastel rosy peach	36 in.	June	yes
Bicolor	yellow and vermilion	42 in.	late June	no
Bijou	yellow overcast with red	30 in.	late June	yes
Brunette	tan red	30 in.	May	no
Buckeye	deep gold with red eye	36 in.	June	yes
Caballero	yellow and vermilion	42 in.	June	yes
Challenger	cardinal red	48 in.	mid-July	no
Cinnabar	golden with cinnamon	30 in.	early June	no
Copper Piece**	pink with golden brown	36 in.	early July	no
Dauntless	pale yellow with pastel mid-zone	36 in.	early July	yes
Dominion	velvety red	42 in.	late June	yes
Festival	gold sepals, English red petals	42 in.	July	no
Georgia	buff and pink peach	40 in.	July	yes
Jennie Love**	geranium pink	40 in.	July	yes
Manchu	buff, peach and gold with red eye	42 in.	June	no
Mikado**	golden yellow with red eye	36 in.	mid-June	yes
Multiflora	deep gold	24 in.	late August	no
Patricia**	lemon yellow	30 in.	July	no
Port	red with darker mid-zone	30 in.	July	no
Princess**	lemon yellow	30 in.	July	yes
Rajah	English red	42 in.	early July	yes
Red Lady	scarlet red	42 in.	mid-July	no
Rose Gem	old rose with darker eye zone	48 in.	July	yes
Serenade	pastel yellow and pink	48 in.	June	no
Soudan**	light yellow	36 in.	June	yes
Symphony**	yellow and rose	44 in.	June	no
Taruga**	lemon yellow	30 in.	June	yes
Theron	mahogany red	30 in.	July	no
Wolof	dark maroon	36 in.	mid-July	no
Zouave	red	36 in.	June	no

*Webber Gardens, 9180 Main Street, Damascus, MD 20872
**Fragrant

Lonnie Dobbs is a member of the Wilmington Garden Club, and a volunteer research assistant for Valencia Libby, Winterthur's garden historian. The ongoing identification of the Stout daylily collection at Winterthur and subsequent historical research has been her special project since spring 1984.

TO BREED OR NOT TO BREED

Are the "new and improved" Post WWII daylilies really better? Has the production of thousands of hybrids changed standards? Are old treasures discarded in the race for novelty?

by Hal Bruce

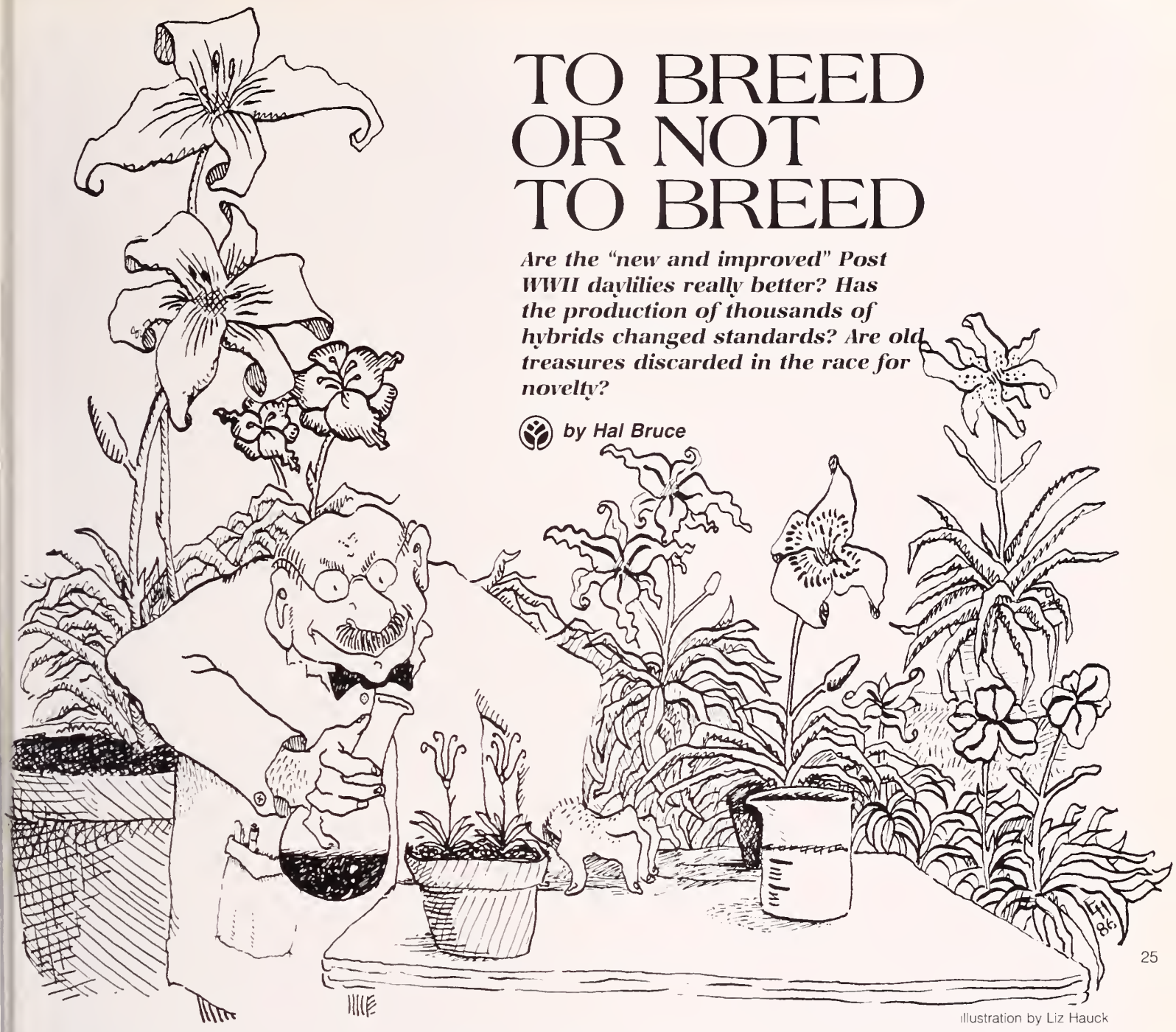


illustration by Liz Hauck

And what a splendid and sturdy race it is! One of the most satisfactory that we have in the garden, going about the business of growing and being beautiful without fuss or exactions, at once sturdy and graceful, and with the many new hybrids covering a blossoming period of many weeks of the summer.

Louise Beebe Wilder
The Fragrant Garden
(Macmillan, 1932), p. 60.

Wilder is describing the genus *Hemerocallis* here, and I think sums up its virtues admirably. When she wrote these words, of course, daylilies in the average garden were mainly species: the common orange-tawny "road lily" *(Hemerocallis fulva)* and its double form 'Kwanso,' *H. lilioasphodelus (flava)* called "custard lily" because of its color, and a few rarer species. The hybrids Wilder mentions were produced by pioneer breeders like Perry, Yeld, and Burbank. One of these early hybrids, 'Ophir,' was the first daylily I acquired (from Hildemere Gardens, that wonderful old mom and pop nursery near Lima, Pa., which disappeared when the Franklin Mint was built). It is illustrative of the slow progress of hybrid daylilies before 1950 that 'Ophir,' which I acquired in the '60's, is also mentioned by the hybridizer Hubert Fischer as one of the first he acquired, around 1918.

But by the '60's things had begun to change. The hybridizer Hazel Lacey, in an essay entitled "The Perennial Supreme??" in the April-June, 1969, issue of *The Hemerocallis Journal,* asks "can you think of a perennial that has 'caught on' so fast...?" The answer had to be "no." Several mail-order nurseries specializing in daylilies were now offering an array of new, very beautiful and often very expensvie hybrids. The daylily as perfect perennial – beautiful, long-blooming, pest-, disease-, and maintenance-free – was suddenly discovered by garden writers, as though

continued

TO BREED OR NOT TO BREED

Louise Wilder and others of the preceding generation had never discussed these qualities. Most important, the American Hemerocallis Society had been founded after WW II.

Now the fact that any group of plants wins a following large enough to coalesce into a national society says much that is good about that group. The societies are usually focused on plants that possess a certain mystique and fascination: the lily, the rose, the orchid. They also must be good garden or greenhouse plants, with sufficient commercial appeal to support extensive hybridizing, selection and testing, naming and registration of new clones, and finally marketing and sales of these "improved" hybrids. The formation of the American Hemerocallis Society was probably the single most important factor in the development of the modern daylily, and I want to talk about this in some detail. First, however, a comparison of the daylily society with some others is of interest because it shows how comparatively limited the raw material available to hybridizers of the genus has been. See Table 1 below.

That a gene pool of only 17 species can produce the quantum leaps in improvement in size, texture, color, and form exhibited by modern daylilies seems astounding. There just doesn't seem to be that sort of diversity inherent in the species.

But of course all these new qualities are there in the species, lying dormant as recessive genes or waiting to be brought out by careful selection of parents and patient line breeding. Daylilies as a group are highly interfertile, easy to pollinate, quick and easy to germinate, and grow rapidly. Seedlings often bloom the second year after sowing, so that in eight or ten years (which would be the time required for, say, the average rhododendron hybrid to flower from seed) four or five generations of hemerocallis hybrids can be produced. This ease of production more than anything else explains the "improved" modern daylily.

Add to ease of production, the sheer number of hybrids produced during the last few decades. In the Jan.-March 1966 supplement to *The Hemerocallis Journal*, W. E. Monroe, the Society's registrar, discusses most interestingly the increase in registration of hybrids after the war. The first registered hybrid was recorded in 1893; in the 49 years between 1893 and 1942, 493 hybrids (only about 10 per year) had accumulated. The registrations for 1966 alone were 894, almost double that of nearly half a century. By the end of 1967 the total number of hybrids registered was 13,400. I have no data since then, but do not doubt that numbers have increased with Malthusian regularity.

And I confess to becoming attached to a good many of the old stalwarts I have grown. They are part of the fabric of my past as surely as many of the houses I've lived in, the people I've loved, the pets I've cared for, the books I've read, and the clothes I've worn.

A third factor besides ease of production and numbers produced is important when we consider the evolution of the modern daylily: i.e, the composition of the society that influenced its members' work.

influence of the american iris society

A roster of guiding lights in the AHS at this time contains many names familiar to iris growers: I. W. Brummitt of England, Stedman Buttrick and Elizabeth Nesmith of Massachusetts, Orville Fay and Dave Hall (originator of "flamingo pink" irises) of Illinois, the Sass brothers of Nebraska, Jack Romine and Tom Craig of California, Fred De Forest of Oregon, and many others. These iris specialists brought to the young Society not only expertise in culture and genetics, but a whole society mystique. The American Iris Society was founded by John Wister of Swarthmore in the '20's. Its members had seen the "advance" of tall bearded iris clones from a few small, narrow-petalled flowers of muddied blended tones or indeterminate lilac to tetraploid giants colored in pure pinks, whites, yellows, blues, with laced, frilled or rounded segments so stiff that the "falls" no longer fell below the horizontal. These iris breeders had learned not only how to produce bigger and better flowers but how to create a standard against which to judge these flowers. What they basically did with daylilies was to translate accepted tall bearded iris standards into hemerocallis terms – the largest flowers feasible, with broad, overlapping segments in pure, clear, new (if possible) colors. The appeal of the cardinal red or geranium pink daylily susperseded almost every other consideration, especially if it were 8 or 9 inches across (Monroe, in the *Journal* supplement cited earlier, mentions one registered as 16 inches across.)

tetraploids

Iris breeders like Fay and Hall also brought with them knowledge of the importance of genetics to any breeding program, and it was not long before they began experimenting with colchicine-induced tetraploid daylilies. In 1949, Hamilton Traub of the American Amaryllis Society published a paper on these efforts. Twenty years later, a vast number of introductions were tetraploid, and indeed, tetraploids were heralded as the future of daylily breeding. This prediction doesn't seem to have come true, for in the mid-80's at least as many diploids as tetraploids are being registered.

But if tetraploids have not quite lived up to expectations, there is no doubt that American breeders have produced some astounding changes in a very short time, and there is little doubt that the modern hybrid daylily lives up to most of the "ultimate perennial" hype one reads about it. However, there have always been dissenters:

> "Could be, I'm the only person alive (?) *[sic]* that wants old daylilies." Aleta Eggle, *The Hemerocallis Journal*, 23:2, April-June, 1969, p. 47.

As with every popular flower, vogue plays a large part in the success or failure of a clone. Trend setters in the world of hemerocallis are judges and Society officials, conventioneers and other interested Society members who attend meetings and shows and visit test gardens, and of course, the owners of the commercial gardens who introduce and sell the new clones. By the time the plant is available there will have been so many references to it in catalogs and journals that it becomes what those who say "hem" instead of "daylily" call a "must have." Some of these "must haves" have been a disappointment to this writer, especially those introduced at $100 per division!

But the question I really feel compelled to ask is this: what is happening to those

Table 1

*Society	*Group Treated	*Number of species in group
American Orchid Society	Family *Orchidaceae*	17,000-30,000*
American Rhododendron Society	Genus *Rhododendron*	approx 800
American Iris Society	Genus *Iris*	approx 200
American Lily Society	Genus *Lilium*	80-90
American Hemerocallis Society	Genus *Hemerocallis*	approx 17

*The disparity between 17,000 and 30,000 reflects disagreement between botanists as to demarcation of species in this, generally accepted to be the largest of plant families

many thousands of cultivars produced in the past? For it is perfectly obvious from reading copies of the journal that the dominant attitude is not only that new is better but its corollary, old is worse. Thus Ms. Eggle's humorous defensiveness about wanting old daylilies. Thus the repeated journal comments that variety 'X' "was very attractive in convention gardens *even though* an older clone." (Author's italics.)

Many important questions arise here: is every new daylily an improvement over its forebears? Is there some relative standard of beauty applied to these – are they beautiful and desirable at introduction but, like human beings, fade with age? It seems to me that beauty is an absolute; what is beautiful today doesn't become unbeautiful simply because it has more competitors. And I confess to becoming attached to a good many of the old stalwarts I have grown. They are part of the fabric of my past as surely as many of the houses I've lived in, the people I've loved, the pets I've cared for, the books I've read, and the clothes I've worn. Is there anyone else out there who gets a lump in the throat when the names 'Towhead,' 'Ringlets,' 'Cartwheels,', 'Lime Painted Lady' are invoked? Yet all of these have been replaced by "improved" varieties. I probably would be unable to find any of them except in private gardens or historical collections.

What about these new varieties which have replaced old favorites? Notwithstanding their size, color, and sheer spectacle, it certainly is not true that they are faultless. Most, for example, bloom during the two weeks in July, a time thought of as the daylily season, when society conventions or shows are held. Actually it is the blooming season of the three or four species of daylily *(H. aurantiaca, citrina, fulva, thunbergii)* which predominate in modern hybrids. The result is a glut of bloom in early summer and very little at other times. The spring blooming season of *minor* or *middendorfii,* the late summer season of *multiflora,* the autumn season of *altissima* have played little part, perhaps, because they all have relatively small flowers and haven't been used by breeders intent on large size. Table 2 shows clearly the correlation between flower size and frequency of hybridization.

A fault more obvious in new cultivars than old ones is stiffness. Flowers are only a part of the beauty of a daylily plant; just as important are what we might call its lines: the graceful fountain effect of its arching foliage, its slender, branching scape, its trumpetlike blossoms held at a distinctive angle above the foliage, and above all the harmonious repetition of these angles, shapes, curves – the branchlets all the same length and curvature, the flowers each seeming to hover in the air at the same angle. Such subtle but important distinctions are lost in the race for size. Tetraploids especially have coarse, still scapes that seem to branch every which way and hold flowers at grotesque angles, as well as sepals and petals often so thick that the flowers have difficulty in opening.

It is of course true that almost from the beginning a few perspicacious individuals have concentrated on breeding small daylilies and that the American Hemerocallis Society presents annual awards for the best of these. But the real energy has always been overwhelmingly focused on the mammoths.

Plant societies, however, exhibit a curious parallelism in their history and development. Nearly all begin with adherence to a strict code as to what the ideal flower should look like. Several years and thousands of introductions later, interest suddenly revives in plants ignored or discarded along the way – old and obsolete suddenly become "historical." In the Iris Society the obsolete diploids offered a pleasingly delicate alternative to the enormous modern hybrids and were taken back into favor in the '60's as "miniature tall bearded" irises. One has only to see the people clustered around the sales booths of miniature roses at the Philadelphia Flower Show to see their popularity. More important, I think, is a renewed interest in species and shrub roses. And recently at an orchid show I was heartened to see that all the blue ribbons did not go to cabbage-size cattleyas and hybrid lady-slippers but to species and small-flowered primary hybrids – what orchidists tend disparagingly to call "botanicals."

It seems that the time for historical daylilies is upon us. At least one nursery is now specializing in them, and I have on my desk a request from a well known hybridizer for a division of a hitherto ignored *altissima* hybrid of Dr. Stout's. In such ways are the value of historical collections made manifest. They are repositories of genes beyond the comparatively few selected out by standards and breeding programs, and offer a chance to start again on alternative paths.

Suggestions as to the directions these paths might take would be a subject for another article, perhaps, but I would like to see the towering yucca-like autumn stateliness of *H. altissima* developed further. Or the unbranched falsely umbellate scape of species like *middendorfii* emphasized; it gives hybrids bred from these species a distinctively amaryllis-like appearance, and is usually associated with genes for multiple scapes and rebloom. The hundreds of tiny bells on divergently branched scapes of *multiflora* offer another path to follow further than has been done. And what about developing the wide-spreading stoloniferous habit of *fulva* so that we could have ground cover daylilies in many heights and colors? As a large-flowered, summer-blooming specimen perennial, the modern daylily may have achieved the ultimate, but this has hardly exhausted its potential.

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Table 2

HEMORACALLIS SPECIES

Species Name	Color	Height	Bloom Season	Flower Size	Hybrids
altissima	pale yellow	6 ft.	Aug.-Oct.	medium, fragrant	very few
aurantiaca	bright orange	3 ft.	July	large	many
citrina	pale yellow	4 ft.	July	large, fragrant	many
dumortieri	orange yellow	1½ ft.	May, June & Sept.	small, fragrant	miniatures
forrestii	yellow	1½ ft.	May, June	small	?
fulva	pink/orange/red	4 ft.	July	large	many
lilioasphodelus	pale yellow	2 ft.	May, June	small, fragrant	few, miniatures
middendorfii	orange	1½ ft.	May, June & Sept.	small	miniatures
minor	yellow	1½ ft.	May, June	small, fragrant	miniatures?
multiflora	orange yellow	3 ft.	Aug., Sept.	small, numerous	few, small-fld clones
nana	orange	1½ ft.		small	?
plicata	yellow	1½ ft.		small	?
thunbergii	pale yellow	3 ft.	July	medium	many

Only *aurantiaca, citrina, fulva,* and *thunbergii* species have been used extensively in hybridizing the standard daylilies.

Hal Bruce is curator of plants at Winterthur Museum and Gardens. He is author of *How to Grow Wildflowers and Wild Shrubs and Trees in Your Own Garden,* Alfred A. Knopf, New York, 1976 and *The Gardens of Winterthur in All Seasons,* The Viking Press, New York, 1968. He is currently working on a book for Knopf about meadow gardening.

Charles H. Mueller: Bulb Specialist

His Bucks County Display Garden Blooms with 50,000 Flowering Bulbs

by Derek Fell



Fosterana 'Orange Emperor'

photo by Derek Fell

I was admiring a friend's studio garden at his home in the Delaware countryside. It was one of those bright, cloudless blue-sky days with the deciduous trees all shiny-green from freshly unfurled leaves and wildflowers sparkling like jewels in the meadows and woodland. The red brick patio featured rectangular island beds intensively planted with immense Darwin hybrid tulips – shimmering clear yellows, intense blood-reds and glowing orange underplanted with sapphire blue forget-me-nots and cheerful purple violas. An experienced landscape architect and plantsman, my friend is not easily given to self-praise. "Look!" he exclaimed excitedly, pointing to his tulips. "Not a blind bulb in the lot; they didn't miss a shot!

"I bought them from your neighbor, Charles Mueller," he added. I could tell they were Mueller tulips without being told. Perfection shone in every bloom.

"His is the only place to buy good bulbs any more," continued my friend. "They aren't cheap, but you know you are buying the best."

I had mentioned that Mr. Mueller had told me his largest order was 100,000 daffodil bulbs. Some years ago after a story appeared about him in Philadelphia's *Bulletin,* a wealthy New York fashion designer read it. He ordered 10,000 bulbs each year for ten years for naturalizing – all from Mr. Mueller.

"*One hundred thousand* Mueller daffodils!" My friend sounded flabbergasted. "Wow – I'd like to see *that* planting."

Mueller runs a unique operation from a colonial fieldstone farmhouse and several acres overlooking the Delaware River, on River Road, just north of New Hope, Pennsylvania. Called "Lentenboden" – a Dutch word meaning *Herald of Spring* – Mueller calls it his "living bulb catalog." Though he does publish lists of his bulb offerings, these contain only descriptions and prices – no glamorous color pictures like most other mail order bulb specialists use to encourage orders. Instead, Mueller puts his main selling effort into growing hundreds of varieties of tulips, daffodils and other spring flowering bulbs in special display beds surrounding his home. Customers are invited to tour the garden in spring and make selections from the flowering models. As well as offering planting ideas and color schemes, the live display is a far more stimulating sales tool than the most expensively produced printed catalog. Over 50,000 bulbs are planted on three levels of a sunny slope, each level a distinct blooming period – early, mid-season and late. The whole display begins around April 15 and ends a month later. Each variety is accurately labeled and planted in orderly groups – generally 15 bulbs to each group. Mueller himself is usually on hand to supply pencils and order blanks so you can write down what you want for delivery in fall at the proper planting time.

Daffodils are planted in two areas, in woodland in two parallel curved beds, and in several more beds in an open lawn area close to the house. Some massive clumps have been allowed to naturalize along a wooded slope where yellow and orange crown-imperials pervade the air with a pleasant musk-like odor.

Early-flowering species tulips are displayed in a large rockery at the bottom of the property, overlooking a pond. Minor bulbs such as aconites, snowdrops, scillas and grape hyacinths are interspersed among the more dominant tulips. Later-flowering Darwin hybrid tulips are massed along a driveway leading to the house. It is a stunning sight – a rainbow of intense shimmering colors outshining everything else in the garden. Other modern tulips – notably parrots, lily-flowered, cluster-flowered, peony-flowered and fringed tulips – are planted in beds surrounding the house. Though it is essentially a "trial garden" the overall effect is natural, and it is easy to visualize these plantings in a home garden landscape.

Mueller enjoys dispensing advice about bulbs that leaves you in no doubt whatsoever on how to solve specific problems. For example, the very best soil for tulips and daffodils is leaf mold. There are several large bins of fallen leaves on the property, in various stages of decomposition. Mueller adds the black, fluffy organic matter to his beds every year in fall. Failing access to leaf mold, he recommends gar-



photo by Derek Fell

Lily flowered Tulip Fellowship



photo by Derek Fell

Charles Mueller talks with a visitor in the display gardens.

den compost, well decomposed animal manure (particularly cow manure) or peat moss, though the latter is generally expensive and lacking in nutrients.

To keep daffodils coming back every year – and multiplying freely – he agrees that bone meal is effective because it contains high levels of phosphorous needed for strong bulb development and flowering. But he points out that for large plantings it can be prohibitively expensive. Where large drifts of daffodils need to be fertilized, he recommends adding superphosphate twice a year – in spring before the bulbs bloom and again in fall. "Daffodils will even come up through sod if fertilized on this schedule," he says. "But tulips won't, although many of the species tulips can be naturalized in a rockery or cultivated beds. The *Kaufmanniana* (water lily tulips) and *Greigii* group are especially reliable – and also the *Fosterana,* which includes the popular 'Emperor' series. Darwin hybrid tulips, crosses between the old Darwin tulips and *Fosterana*, will also come up each year if given the same feeding schedule as daffodils. According to Mueller, whenever you see ads in national magazines for "Perennial Tulips," it is the Dawrin hybrids that are being offered.

Daffodil bulbs are naturally repellent to squirrels and mice, but crocus, hyacinths and tulip bulbs can suffer heavy losses from these rodents. At Lentenboden rodent damage is controlled by scattering repellent moth flakes into the soil at planting time.

Mueller imports most of his bulbs from seven Dutch suppliers, although he also offers outstanding varieties from American, Irish and British hydridizers. With his wife, Janet, he travels to Europe frequently to keep abreast with the latest developments, and many Dutch breeders send Mueller unnamed seedlings for evaluation under American conditions. Through Mueller's plant lists, customers are offered 1,300 varieties of which 562 are daffodils. He is fastidious about offering varieties only under their registered names, unlike many suppliers who invent new names to give the impression they have something exclusive. Business in bulbs has been good for Mueller. In years when other suppliers have suffered from fluctuations in the economy or public taste, his sales have progressively increased, and today he sells close to a million bulbs annually. They are packed and shipped from a large barn on the premises. Still, he feels that American gardeners have a long way to go before they are planting enough bulbs, compared to European gardeners. Given the natonal trend towards increased numbers of flower gardeners he sees a bright future ahead for flowering bulbs.

"Americans are now more knowledgeable about variety names, and they are becoming more sophisticated in their choices," he says. "We even have customers in places like Vero Beach, Florida, where they have to replant bulbs every year because of their mild winters."

At Lentenboden one of the best times of day to tour the plantings is early morning when a mist from the river may still linger in the low lying areas and flower colors are accentuated by the diffused light. Nobody will bother you and there's no pressure to place an order. Like any good gardener Mueller seems perfectly content if you just wander around and admire the show.

Best dates to visit Lentenboden are April 15 through May 15. The garden is located on Rte. 32 (River Road). Take 202 north towards New Hope, then 32 West. Lentenboden is just ¼ mile on left beyond the new Delaware Bridge. Hours: 10 am to 6 pm daily (7 days a week). Phone: 862-2033.

To obtain Mueller's descriptive list write Charles H. Mueller, River Road, Star Route 21, New Hope, PA 18938. Spring flowering bulbs can be safely planted up to Christmas or until the ground freezes.

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Derek Fell is a photographer and author. In addition to articles that have appeared in numerous national publications, he has written four books published by HP books, one on photography and three on gardening topics: *Annuals, Vegetables* and *Trees and Shrubs*. Most recently he wrote and photographed *Deerfield: An American Garden Through Four Seasons,* published by Pidcock Press in Gardenville, Pa.

HYACINTH BEAN:

a vine climbing to new heights

by Bob Hyland

Hyacinth bean's scientific name, *Dolichos lablab,* rolls easily off my tongue and is one of those Latin epithets that I always seem able to recall.

Doh-li-kos is the old Greek name for bean. A member of the legume family *(Leguminosae)* that includes many important food crops, hyacinth bean is the epitome of an edible-ornamental plant. Whether it is grown in the midst of a traditional vegetable garden or planted alone to climb over a fence or arbor, this purple-podded bean cannot go unnoticed.

While many other cultivated legumes develop green pods that blend with their foliage, hyacinth beans ripen within velvety purple pods. The luster and unique color of the fruits, however, may lead gardeners to question their food value.

In the tropics this vine is grown as a woody perennial climber for its edible pods and seeds. Although I have never eaten the shells, I have dried the beans inside for subsequent boiling. I have yet to try steaming or sautéing the freshly shelled beans.

Unfortunately, the edible properties of hyacinth bean are more often overshadowed by its extreme ornamental qualities. The plant is a vigorous vine treated as an annual in our northern climate. Provided a means of support it will climb vertically to about 10 ft. in a growing season. The vine does not have tendrils or aerial rootlets but will naturally twine around pickets, lattice, and smooth surfaces covered with plastic netting or wire mesh.

Hyacinth bean quickly provides a lush wall of foliage to soften harsh architectural features and provide privacy. Bright green leaves composed of three heart-shaped leaflets unfurl from the vines on wine colored petioles. The real treat comes when the pinkish-white, pea-shaped flowers begin to open. In full bloom vines cover themselves with rigid 6- to 8-inch-long floral spikes that extend well away from the foliage for easy viewing and harvesting of the future pods, which usually grow to 4 in. in length. I feel that individual inflorescences bear a slight resemblance to a hyacinth bulb in bloom, although lacking the same density and fragrance. Could this be the derivation of the common name?



photos by Bob Hyland

Hyacinth bean pods

I first admired this vine in the annual flower display in Longwood's Idea Garden. Late afternoon sun caught the shiny surface of the purple pods and drew me instantly to the new plant. I must admit that the foliage and form of that particular specimen was not especially attractive. The vine was struggling to climb a teepee formed by three wooden stakes in an effort to rise about brightly-colored beds of annual flowers. The sheer masses of annuals clearly had the edge in the competition. Yet, the fact that out of the midst of this intense color I could single out the hyacinth bean made a lasting impression on me. It easily went on my plant wish list for the following growing season.

The next May I suggested we sow seed of this climber along a small section of fence in Longwood's Food Gardening exhibit. Germination occurred within seven days and the vines were off and twining. By mid-July a dense green cover hid the fence only to transform dramatically to pinkish-white as flowering commenced. A more subtle color change followed as a wave of purple engulfed the vines with pod development in August. In my estimation hyacinth bean had proven to be a stellar garden performer.

Due to its well-earned star status, the



photo by Bob Hyland

Australian pea in flower *(Dolichos lignosus)*

bean played a much larger role in the Longwood display last summer. Vines were used as a succession planting for an early spring crop of sweet peas along a 40-foot length of fence with an eastern exposure in the Food Garden. As the fragrant display of pastel sweet peas (Royal Family Mix) began to fade in the warmer June temperatures, hyacinth beans were seeded among them. Their floral and fruit displays were timed for late August and September when little else would be in bloom.

I have also grown hyacinth bean successfully in containers on an apartment terrace to provide a leafy barrier between me and my neighbors (see *Green Scene*, Jan.-Feb., 1986). Other innovative landscape uses I have observed include a companion planting of *Dolichos*, the climbing rose cultivar White Dawn, and fountain grass *(Pennisetum alopecuroides)*. The first flush of rose bloom in June is too early to coincide with the floral display of the hyacinth bean. But rebloom of the white rose and flowering of the grass is simultaneous with the legume's blossoms and pods to produce some interesting contrasts in color, form, and texture.

Hyacinth bean also shows up in the recreated vegetable gardens at Thomas Jefferson's home Monticello. There they are combined with scarlet runner beans *(Phaseolus coccineus)* to cover a rustic arbor. Although there is no historical record of Jefferson or his gardeners growing hyacinth bean, it seems appropriate to the mood and character of the garden and makes a cool, shady arbor under which to sit and escape from the hot summer sun.

I recently spotted a much more subtle use of hyacinth bean clambering up a lamppost in front of a small cottage-style house. I have also heard that several Philadelphia Green gardeners are growing hyacinth beans in community vegetable gardens both for food and beauty.

The bean's culture is relatively simple. Seed can be purchased from the sources I've listed here. Once you have grown the bean you will have more than enough seed to supply yourself as well as your gardening neighbors.

Sow seed in well-prepared garden soil after the last frost date in your region. Expect a high percentage of beans to germinate and prepare to thin seedlings to 2-4 in. apart. To get a head start on the growing season, beans can also be germinated in peat pots or flats and grown on indoors 4-6 weeks earlier. They do not take readily to root disturbance during transplanting, so I find it best to grow plants in fiber pots that can be planted directly in the ground.

In my observations, few insects or diseases attack hyacinth bean. Occasionally whitefly populations will explode but are controlled with sprays of insecticidal soap. In extremely hot, dry weather spider mites can also find a haven between the veins on the underside of leaves. This is a more difficult pest to control, but some control is achieved through applications of a miticide, such as Plictran or Vendex.

Heathy, vigorous vines will be much more resistant to insects. Water established beans frequently, especially those planted in containers or raised beds. Groom plants periodically, remove yellowed or chewed leaves and prune or pinch off overripened bean pods that begin to discolor or shrivel to prolong flowering and fruiting. Of course, if you're growing hyacinth bean as an edible vegetable you'll be harvesting plump pods before they spoil.

For gardeners who become advocates of hyacinth bean and want to experiment with a close relative, try *Dolichos lignosus* (Australian pea). I saw the plant growing at the Strybing Arboretum in San Francisco's Golden Gate Park in the fall of 1984. The delicate vine has much smaller leaves, ½-in. rose-purple to white flowers, and 1-in. fruits. I quickly sent away for seed from J. L. Hudson Seedsman and grew the climber last summer. It is a perennial vine usually grown in frost-free climates, and I found that our growing season is not long enough for it to flower and fruit. However, after one attempt at growing Australian pea, I don't feel I have conclusive proof that it can't successfully be treated as an annual in the mid-Atlantic region. I'm determined to try it again this year.

Another variant to be on the lookout for is a cultivated variety of hyacinth bean named 'Giganteus.' The literature describes a larger form with pure white flowers. I have not yet found it listed in any seed catalog.

Mail-Order Sources for Hyacinth Bean

Thompson and Morgan, Inc.
P.O. Box 1308
Jackson, NJ 08527

J. L. Hudson Seedsman
A World Seed Service
P.O. Box 1058
Redwood City, CA 94064
(catalog $1.00)

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Bob Hyland is a staff member of the Education Department of Longwood Gardens. He has masters degrees in ornamental horticulture from the University of Delaware's Longwood Program and North Carolina State University.

WAVE A FAIRY-WAND IN YOUR GARDEN

Chamalirium luteum

by Claire Sawyers

While many members of the Lily family are old and cherished friends to gardeners, *Chamaelirium luteum* seems little known and infrequently used. It's called upon like a great aunt and without reason since it has only pleasant habits and idiosyncracies.

A native of the eastern United States, this hardy perennial produces pleasing spikes of dainty, creamy-white flowers in mid-summer. Its show, primarily in June, seems peacefully refreshing after the frenzy of spring wildflower bloom.

Chamaelirium luteum goes by a variety of common names, including devil's-bit, blazing star, rattlesnake root, but another name – fairy-wand – suits it best. The single flower stem shoots up from a low rosette of leaves and topped with numerous small flowers, it seems like an organic wand wood nymphs and make-believe fairies might wave around. The name "rattlesnake root" describes the plant's underground knobby, curved rhizome – a structure unnoticed by gardeners except perhaps when transplanting or dividing the plant. Some references note that the rhizome and roots have been dried and used medicinally for various gastro-intestinal disorders. H. W. Rickett in *Wildflowers of the United States* points out why the other common names are unfortunate: "nothing about the plant 'blazes' or is starlike; 'devil's bit' or 'devil's bite' is the name of a quite different plant in England; the devil is supposed to have bitten off its rhizome and this is subject of several superstitions."

Even its scientific name is a misnomer. The genus name, composed of the two Greek words, *chamai,* meaning "on the ground" and *leirion,* meaning "lily," describes the dwarf, atypical specimen the genus was found on. And *luteum* misleads. Latin for "yellow," it describes the color the flowers fade to rather than its creamy white color at prime bloom. The genus contains only the one species, which is closely related to *Helonias bullata,* the swamp pink, a plant with similar flowering and foliage characteristics. In fact, Linnaeus originally placed fairy-wand in the genus *Helonias*.

A dioecious plant, fairy-wand forms staminate (male) and pistillate (female) flowers on separate plants and the two types of plants behave differently. Stems of female plants stand straight and reach from 2 to 3 ft. while the male stems stay lower at 1 to 2 ft. and tend to nod, forming arched wands. On both, the small individual flowers circle the stem clustered at the tip forming a tight inflorescence from 4 to 12 in. long. The staminate flower wands appear more graceful and foamy with six short stamens per flower, but the pistillate spikes persist. Small three-sided seed capsules about ¼ in. long form and even after the capsules split and scatter the seeds, the stem and dried shells flag the planting in the winter when the male plants lie invisible under snow.



photo by Claire Sawyers

Chamaelirium luteum at Mt. Cuba in Greenville, Delaware

This wildflower may not live up to its various names, but it makes a delightful plant for shady garden spots and to combine with other native plants. At Mt. Cuba Center (Greenville, Delaware) in the wildflower gardens of Pamela Copeland, fairy-wand has been planted in a small drift under the high canopy of tulip poplars, in amongst rhododendrons and hydrangeas. It seems quite at home there as I suppose it should since its natural range extends from southern Ontario, Massachusetts, and New York south to Arkansas and Florida and west to Ohio, Michigan and Illinois. I know of it naturally occurring in several sites near the Delaware-Maryland border in both deep shade and meadow edge situations, and spanning a number of years, botanists have recorded fairy-wand's presence in the Pennsylvania-Delaware area. In the 1860 *Catalog of Plants of New Castle County* [Delaware], Edward Tatnall listed it as a frequently encountered plant; nearly a century later Robert Tatnall noted in his local flora that it occurs infrequently in rich woods and thickets of the Piedmont area. And in the *Atlas of the Flora of Pennsylvania,* published by the Morris Arboretum in 1979, a map of the state dappled with dots indicates this plant's presence throughout the state, with a high density of dots in the southeastern corner – the Piedmont of Pennsylvania.

As a garden plant fairy-wand performs well in shade but like the meadows it naturally picks, it can also take sun provided there's enough moisture. It's easily transplanted; its rhizome can be divided, and it can be readily propagated from seed. Sow the seeds in the fall and keep them moist. The only drawback to propagation by seed is that it may take several years before the plants reach flowering size. Marcie Weigelt, wildflower gardener at Mt. Cuba, finds it takes nearly two years for seedlings to reach a size suitable for transplanting into the garden.

Chamaelirium luteum may not be as spectacular as some of its relatives, but it adds a cheerful air to the garden with few demands or detriments. It's a worthy garden plant with attractive, clean rosettes of foliage throughout the growing season, which persist even into the winter. The handsome floral spikes in June smell sweet and last long. They're wands worth waving.

Sources:

Chamaelirium luteum is available as nursery propagated plants from We-du Nurseries (Route 5, Box 724, Marion, NC 28752). Seeds may also be available from the New England Wild Flower Society (NEWFS), Garden in the Woods (Hemenway Road, Framingham, MA 01701). They were offered by NEWFS on their seed-sale list for the first time in the spring of 1985

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Claire Sawyers works at Mt. Cuba Center in Greenville, Delaware, and enjoys writing about horticulture in her spare time. She edited *Japanese Gardens* which was issued early in 1986 as part of the Plants and Gardens Brooklyn Botanic Garden Record series. She is updating *A Guide to American Public Gardens*, using her master's thesis as a source for the expanded information.

growing interests





photos by Holly H. Shimizu

Rosa wichuriana poteriifolia at the National Herb Garden in the U.S. National Arboretum, Washington, DC.

a tough and glorious ground cover rose

The ground cover memorial rose *(Rosa wichuraiana poteriifolia)* forms a mat that is so thick even the weeds cannot grow through it. The rose was originally collected in 1956 by Dr. John L. Creech, the former director of the U.S. National Arboretum and is now growing in the National Herb Garden at the Arboretum in Washington, DC. It was found growing on a sandy beach area in the southern tip of Japan on Shikoku Island at Murotozaki, Kochi Prefecture. Dr. Creech was collecting with one of Japan's leading botanists, Dr. H. Takeda, who used the variety name, *poteriifolia*. As of 1975 this name does not appear in *Index Kewensis*. It is a rare variety with a restricted natural distribution. Although vigorous, the variety is less rampant than the species.

Growing *Rosa wichuraiana poteriifolia* is easier than growing most roses. Once planted it will soon form a low, thick and lovely ground cover. It may require light pruning to keep it in bounds. There is potential for using this rose on slopes for a fast growing and low maintenance cover. Keep it in full sun, and water only through establishment. It is resistant to most insect and disease problems and hardy to USDA Zone 5b (temperature range – 10° to 20°F).

continued

Atop the prickly branches will appear single, white flowers in summer followed by red clustered fruit in autumn. Rooted cuttings have been sent by The U.S. National Arboretum to many major nurseries. It should begin to appear in the catalogs before long.

Holly H. Shimizu

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ALERT:

burning poison ivy

Re: "Working with Nature Makes Winter Fly," March 1986 issue of *Green Scene*, Col. 3, page 4

A clarification about burning cut poison ivy debris: The smoke is highly toxic and can cause itching or worse; therefore one must be extremely careful to stay out of and away from it (the smoke) at all times while tending the fire. In the article "Working with Nature," I stated "remember to stay to the lee of the fire." This is exactly the opposite of what I intended. (Gardeners, at least this one, should not use nautical terms.) I apologize and hope no one has suffered from my error.



Joanna McQ. Reed

Editor's Note: Same article, page 6, center column, line 21. "Be prepared to relocate some of your carefully *potted plants* when you discover they ruin an entire patch ..." should read "plotted paths."

the plant finder

A free service for *Green Scene* readers

If you can't locate a much wanted plant send your name and address (include zip), the botanical and common name of the plant to Plant Finder, Green Scene, PHS, 325 Walnut St., Philadelphia, PA 19106. People who have the plants or seeds you want will contact you to make arrangements about selling or giving them away, mailing, etc.

▼

WANTED

Acer saccharum (sugar maple) 'Temple's Upright' and ***Tilia americana*** (American linden, a.k.a. basswood) 'Fastigiata.'
Contact: Eric Nitardy, 703 Laurel Avenue #3E, St. Paul, MN 55104-7171

PLANT SOCIETY UPDATE

These entries are in addition to the listings that appeared in the March/April 1986 *Green Scene*, page 34

THE PHILADELPHIA UNIT, HERB SOCIETY OF AMERICA

THE ANNUAL HERB SALE

Thursday, May 8, 1986 – 10 am - 2 pm

at the farm of Dr. and Mrs. Bryce Douglas Kimberton, Pa.

Signs posted from Kimberton to Sale

Correction:
Delaware Valley Unit **Herb Society** of America

Dedication of Industrial Herb Garden will take place on June 29 at **3:00 p.m.** (See page 34, March/April 1986 *Green Scene.)*

Philadelphia-Valley Forge Chapters of the **American Rhododendron Society** Flower Show at Tyler Arboretum

Saturday, May 17, 1986
Show open 11:00 to 4:30

Any member of the American Rhododendron Society may exhibit. **No fee to exhibit or visit show.** Entries accepted between 8:30 and 10:30 A.M.

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Letters to the Editor

Not Monarch Butterflies

Jane Pepper, in talking about carrots in her article in the Nov.-Dec. '85 *Green Scene*, said that the green and black caterpillar that likes to eat parsley and carrot tops is a monarch butterfly caterpillar. In fact, monarch butterflies come from *yellow* and black caterpillars. I fed several of the green and black caterpillars until they became chrysalises; the following summer eastern swallowtail butterflies emerged. If a predatory wasp had laid its egg on the caterpillar the previous summer, a young wasp emerged instead, having devoured the caterpillar inside the chrysalis.

Robert M. Sprogell
Moylan, PA

The Bittersweet Menace

I enjoyed reading Joanna Reed's article in the Jan/Feb issue and was heartened to find her speaking out – if only in passing – about the increasing problem of rampant vines in our woods and woodlots.

Surely almost everyone in this area has seen the blanket of bittersweet that festoons the Turnpike embankments just west of Valley Forge. For a number of miles on either side of the road there is hardly a tree unburdened by it. In summer it presents a verdant scene, but in winter, the damage is evident. Young trees along the road are bowed and broken; as they give way, the vines advance into the maturer growth behind them. Even that will not withstand the assault for long. I have seen stands of large trees along the Delaware obviously losing their tug-of-war with the vines.

As Mrs. Reed notes, in earlier times farmers helped to keep our native vines under control, as did grazing animals and fires, both deliberately set and accidental. Now our uncultivated areas get little help from any of these agents and an imported vine is vastly compounding the problem.

The bittersweet that is engulfing the hedgerows is not, I believe, our native vine, but *Celastrus orbiculatus*, the oriental bittersweet. Having struggled expensviely and unsuccessfully to root it out of our own woodlot, I wrote to my favorite perennial source and questioned their continued promotion of it. Their catalog description might better serve as an indictment of the plant than an advertisement for it:

> "This vigorous native of China and Japan ... sure and productive ... growing to 30 or 40 feet ... makes an excellent subject for covering unsightly structures (and) is also spectacular cascading down an old fruit tree ..."

I am sorry to say that I received no response to my letter and have been even sorrier to find that the same description appears in their latest catalog. It is truly frustrating to know that gardeners and responsible plantsmen are major contributors to a problem of exploding dimensions. I hope that PHS and its members will take note – and take action – before the Kudzu vine of the north swamps us all.

Janet D. French
Mechanicsville, PA

Getting Rid of Slugs

I could readily sympathize with your reader, Toni Brinton (November/December 1985), in her frustrating attempts to control slugs in the garden. This fall I tried, for the first time, a mixture reputed to be lethal, not only to the slugs, but just as important to the eggs. I found the recipe in a publication of the Delphinium Society of England. The mixture – 2 ounces commercial alum, plus ½ teaspoon liquid dishwasher detergent per gallon of water – apparently dehydrates slugs and eggs. When I used it the slugs appeared to be in such agony I was moved to end their suffering with a pair of scissors. It was suggested that delphinium plants be drenched with this mixture at the rate of four square yards per gallon in late fall before mounding over with sharp sand, repeating applications in the spring as indicated.

As slugs and snails flourish and multiply where they find protection, it was suggested that keeping the garden clean and free of mulches, etc., goes quite a way towards keeping the slug population under control. Sharp sand around the plants, however, acts as an irritant, and so is useful as a deterrent.

Susan Tomkins
Mountain Lakes, NJ

Hosta Names

In Mary Lou Wolfe's article, "The Furry Gang of 13: Interlopers in a Developing Woodland Garden," January 1986 *The Green Scene*, the hosta in the bottom left photograph on page 21 is incorrectly labeled. Instead of *Hosta sieboldii*, it should be *Hosta sieboldiana*, the species mentioned on the following page.

Interestingly, there is a hosta whose specific name is *sieboldii*. It is much smaller than the big blue-leaved *H. sieboldiana*. *H. sieboldii* is green leaved with a whitish-cream, narrow border. It has lost favor in the last fifteen years or so with the introduction of many hosta cultivars with better leaf variegations and flowerscapes.

Another name for *H. sieboldii* that will be seen in the literature and catalogues is *H. albomarginata*. Many growers and collectors prefer H. albomarginata believing *H. sieboldii* – the correct botanical name – can too easily cause confusion with *H. sieboldiana*. Prior to the name *H. albomarginata* and then *H. sieboldii*, the botanical name was *H. lancifolia albomarginata*.

Warren I. Pollock, Chair
The American Hosta Society
Nomenclature Committee

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Longwood's *Victoria* hybrid
strong enough to support the
weight of Sue Vernon, a former
professional gardener at
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THE

green scene

HORTICULTURE IN THE DELAWARE VALLEY

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Small Gardens



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photo by John Gouker

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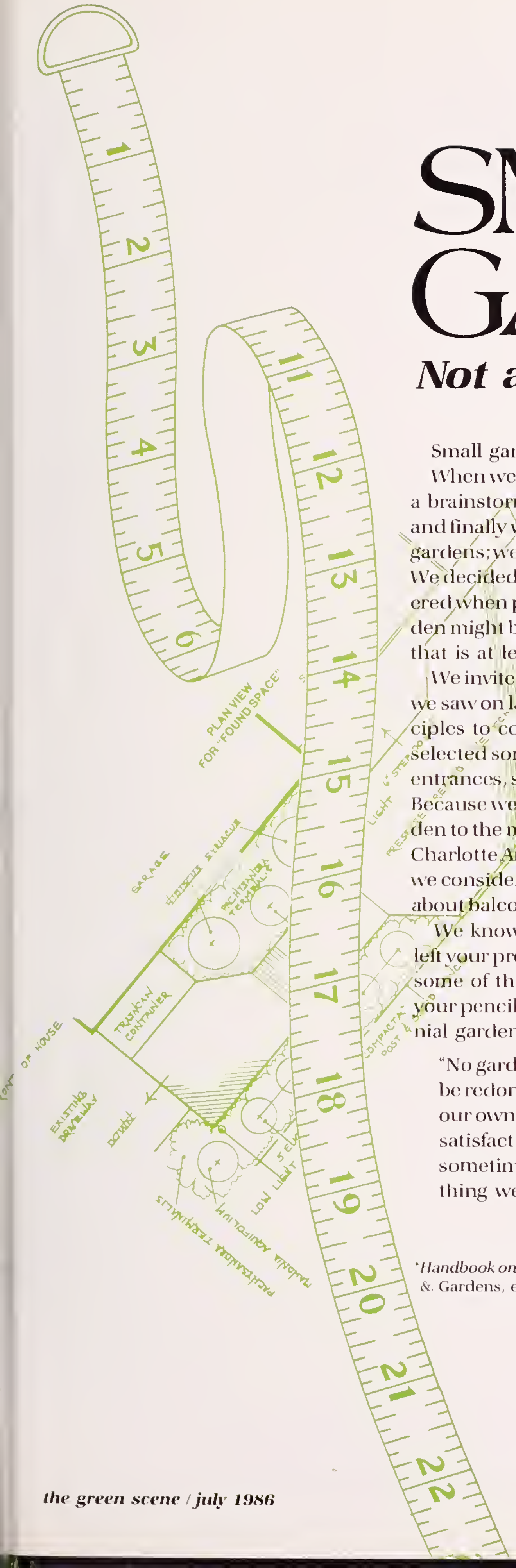
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SMALL GARDENS

Not a Matter of Tape Measures

Small gardens. A big subject. Small, compared to what?

When we were planning this issue, the experts we invited in for a brainstorming session went round and round on that question, and finally we scrapped the idea of showing a photo album of small gardens; we never reached an agreement on exactly what is small. We decided instead to talk about some of the elements to be considered when planning a small garden. So here you have it. A small garden might be handkerchief-size or just a small section of a garden that is at least as large as a football stadium or park.

We invited Rodney Robinson, whose exquisite small garden designs we saw on last year's Wilmington Garden Day, to talk about the principles to consider when designing a small garden. From there we selected some of the elements that concern designers and gardeners: entrances, service areas, ornaments, water, walls, trellises, and arbors. Because we wanted to be sure you would relax and enjoy your garden to the maximum we included a story about dining alfresco by Charlotte Archer, who has raised garden dining to an art. And finally, we considered our vertical growth in the cities and included a story about balconies and terraces in high rises and a Germantown house.

We know we've hardly begun to scratch the surface here. If we left your problem out, let us know and we'll get back to it. We hope some of the ideas our authors present will inspire you to get out your pencils and graph paper and be guided by that excellent perennial gardener and writer Frederick McGourty, Jr., who wrote:*

> "No garden is forever, and even good small ones must usually be redone every 15 or 20 years. Perhaps that is just as well for our own tastes and interests change with time. There is a keen satisfaction in the creation of a new garden itself as well as, sometimes, the good feeling of covering one's tracks if something went wrong earlier."

Jean Byrne, *Editor*

**Handbook on Small Gardens for Small Spaces,* Brooklyn Botanic Garden Record, Plant & Gardens, edited by Frederick McGourty, Jr.

designing the small garden

by Rodney D. Robinson

What is the small garden, and what considerations should the garden planner take into account to insure a successful design?

When clients commission a design for a garden they want a pleasurable outdoor living space to accommodate their needs. The challenge of designing private gardens is to reflect the client's lifestyle and taste in a concise design statement while making the most appropriate use of available space. This is true whether you design for yourself or for someone else. The challenge of doing this on a small scale is to maximize effects with a minimum of materials. This takes some discipline; you simply don't have the room to meander with your design or indulge in frivolous elements. It also takes an understanding of design principles to create a garden composition that holds the visitor's interest.

To hold your interest a garden should reveal itself slowly. It's not desirable to see everything at once. When I design a garden I think of it as a sequence of events. Where possible I place groupings of plants so that it seems that the garden continues around and beyond. Whether you physically move through the space or make the journey with your eyes, the effect is the same. This sequential revelation is harder to accomplish in the small garden where you don't have much room and the tendency is to form one usable space surrounded by plantings. In the small garden, the entry, the degree of enclosure, the level of intimacy and the arrangement of individual plants and built elements guide the senses.

But how does the garden planner approach the task of designing a small garden? I begin by asking questions that usually have to do with the following considerations: defining space, creating transitions between spaces, maintaining a harmony of composition, developing a hierarchy within the composition, scale, focusing attention and exercising restraint.

space

I think of a small garden as one that has restricted space. Often, the space is formed by buildings, walls, fences or dense plantings. There are seldom any grand vistas, so the garden is introspective. By that I mean there is a sense of enclosure, and the garden looks in on itself. These qualities all suggest that a greater level of intimacy can be found in the smaller garden and indeed, it is often essential. The visitor must feel comfortable in the space and since there may not be an enjoyable view to gaze upon, there must be things within the garden that hold his or her attention.

A nursery is a collection of plants, but it is not until you select specific plants and place them appropriately, particularly to create space, that you have a garden.

When designers talk about space they usually consider it in two ways: the *amount* of physical room in which to work and the *quality* of space, i.e., how well the space is defined and what kind of scale it has. The amount of physical space available to the designer is sometimes a constraint, forcing the designer to cut back on good ideas and do only what there is room for. Under these circumstances a little imagination can go a long way. For example, if the owner wishes to have an ornamental pleasure garden but also wants to grow food crops, one solution might be to mix fruits and vegetables with ornamental plants. Strawberries make an excellent ground cover while parsley, chives and other herbs fit in very successfully with bedding annuals. Be sure to consider containers and look upon walls and posts as opportunities for espaliered and climbing plants.

To me, the most successful small gardens are those that use plants, earth forms and built elements to create a room outside. The Andersen garden in Wilmington, Delaware illustrates this principle well. In the garden the room was to be shared between the Andersens and two individual tenants who rented from them. Our intent was to create a garden that appeared to belong to each tenant without subdividing the limited back yard area. This intention required that we suggest a separation of space rather than really make one. As the garden exists today, fencing is used only where privacy requires it. Plantings and built elements help focus attention from the patio/dining areas toward the central garden space, which is composed of intersecting circles of lawn. A path made from leftover pieces of brick and flagstone forms an arc that separates one end of the lawn from a lush planting of broadleaf evergreen trees and shrubs. The paving also unifies the ground plane making the transitions from space to space flow better.

transitions

It think it is important in small gardens to create a sense of "here and there," i.e., a distinction between this space and that. The transition from one space to another. therefore, is crucial. In the Andersen garden there are multiple points of transition. Some are merely gateways that provide security and announce a passageway into the deck area. Others are more subtle, like a change in grade, a timber beam overhead outlining the deck plan, a change in light from sun to shade or plantings that require you to brush against them as you pass into another space. The most important aspect of transition is that it forces you to pause and notice the change.

Another device that I often rely on to create "here and there" is to introduce some element that you are obliged to look through in order to see a space beyond. This device uses the principle of foreground and background. A simple illustration is to hold one hand up at arm's length and look at it. Now hold up your second hand in front of your face and look through your fingers at your first hand. Suddenly you become more aware of a foreground space from where you are viewing and a background space where your first hand is.

In the Andersen garden the deck and dining areas are sunken about twelve inches below the level of the main garden. The grade difference helps define the edge where the garden begins, but the

An intimate private area is carved from a larger ▶ space shared by three neighbors (see back cover for overview).



sense of transition is completed by the addition of a railing, a horizontal beam and a small crab apple tree that you must look through to see the rest of the garden. The final touch is a large corkscrew willow that provides dappled shade over the entire outdoor room.

composition

While each of these devices aids in the definition of space, they must also complement the overall composition. Just as no two musical scores are alike, each garden requires its own design solution. When I teach garden design, I often use musical composition as an analogy. I see the colors, textures and forms of plants as musical notes that must be brought together in some form to create a harmonious compotion. Composition is the key. A collection of plants does not make a garden any more than a collection of notes makes a song. A nursery is a collection of plants, but it is not until you select specific plants and place them appropriately, particularly to create space, that you have a garden. This concept is true even in natural gardens.

hierarchy

A consideration of composition that is often overlooked in garden design is the concept of hierarchy. Again, to use a musical comparison, think what a song would be like if there were no emphasis on certain notes, no repetition of chorus, or development of theme. The piece would seem disjointed, would be hard to remember and might fail to communicate its meaning. Successful planting compositions are similar. They require that certain plants assume dominance over other plants. Dominance is achieved either through repetition, size, color or placement in the composition.

The herb terrace in the Food Gardening Exhibit at Longwood Gardens illustrates this concept. By its very nature an herb garden is a collection of plants that while sharing similar cultural requirements present widely varying physical characteristics. Because the garden must have a great variety of plants it is important to establish some hierarchy to the presentation so that plants don't compete with one another for attention. Also, by their placement, certain plant characteristics can be emphasized. In the Food Gardening Exhibit I planted three Canaert red cedars among a mass of potentillas that swept down the terrace walls. In front of the potentillas I massed a single variety of lavender. These plants occupied one third of the available planting space thereby creating a dominant blue/green yellow highlighted theme from which to display other varieties in smaller quantities. The mass planting of the cedar-potentilla-lavender also brought the herb terrace into scale with the rest of the larger garden.

scale

Don't make the mistake of thinking that because your space is small you must use small plants. That may sound obvious, but I have visited gardens where small trees and dwarf shrubs were planted extensively because the space was small. The dwarf plants were so out of scale with the elements that defined the space that upon



photo by Rodney D Robinson

A change in grade, a change in light and the extension of the architecture through posts and beams creates a transition between the deck area and the garden.

photo by Rodney D. Robinson



The food gardening exhibit at Longwood Gardens features a variety of herbs displayed against a mass planting of potentillas and lavender.

entering the garden I felt like Gulliver surveying Lilliput for the first time. I have also visited small gardens where a small tree planted in the middle of the garden was rapidly expanding and filling what little space remained. In this instance the small tree was an American dogwood that had horizontal branching starting very low to the ground. I would have preferred something with a more upright form like a Korean dogwood, or even a larger shade tree that

Don't make the mistake of thinking that because your space is small you must use small plants.

could climb high and spread its canopoy over the space.

focus

Often, when faced with a small clearly defined space it becomes important to take the emphasis off the edges and focus attention onto something in the center. At the same time it might help to soften and disguise the edges or create the illusion that the space might be bigger than it really is. The Hickman garden in Wilmington, Delaware is a good example of this situation. The space is long and narrow and clearly defined by a stockade fence. In the rear is a large abstract sculpture that was to remain the focal point of the garden. My first inclination was to divide the garden into two spaces, one around the sculpture and one near the house and deck. This was achieved by pinching the garden in the middle with a redbud on one side and a clump of Japanese cutleaf maple on the other, paying close attention not to completely divide the space or block the view of the sculpture from the house. Behind the sculpture a continuous line of arborvitae eliminates distracting shapes in the fence and buildings beyond. A path of geometric composition complements the sculpture and leads the eye through the garden. I used a variety of paving materials and stone to form the path and beds, which take up nearly one half of the available planting space. Because the geometric patterns by which these materials and plants were organized is so apparent, attention is focused upon a composition of textures and not upon the individual rocks and plants.

I find that by having a strong focus to the garden I can sometimes include a greater variety of plants without looking too busy. Nevertheless, there is always the risk of having too much variety.

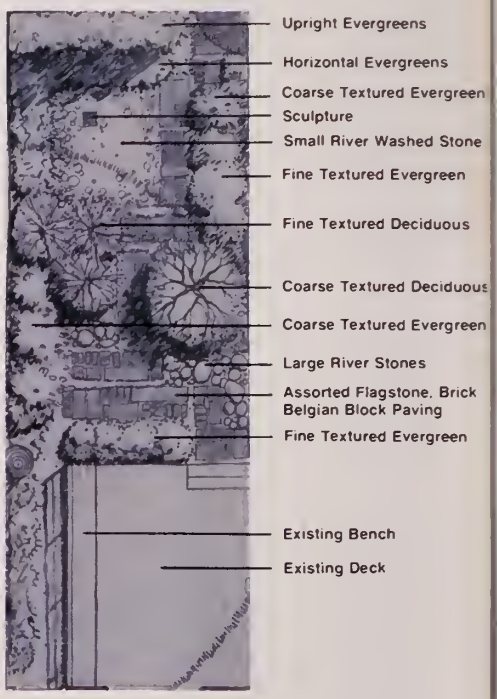
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photo by Rodney D Robinson

In the Hickman garden the designer uses a geometric path to easily lead the eye from one small space to another.

A plan of the Hickman Garden – the plants in the center pinch the garden in half creating two spaces.



exercising restraint

The greatest temptation to all garden planners is to overplant, and the temptation is the greatest in the spring when there are so many beautiful plants, and we'd like to use them all. Roberto Burle Marx, noted Brazilian landscape architect, once told a group of students that the most difficult thing for him to do was to limit his palette. He could think of so many plants that he wanted to use that if he were not careful his garden would "look like a salad." The lesson here is be selective.

The small garden is particularly susceptible to overplanting. After all, there is only so much space available. How many times have you seen a small garden with a variety of azaleas, one of each, each a different color and all in bloom? Your eyes race around the garden from color to color in the same way you would survey a box of chocolates. Such a garden is a collection and the sensitive garden planner should show restraint and avoid this.

In summary, the well designed small garden can be a wonderful place to find seclusion and intimacy in a richly planted setting. But to achieve this a great deal of effort is required in the planning stage. The most successful gardens are not just those where the plants are thriving. They are gardens that reflect an understanding of the interactions between the visitor, the site and the plants. To me the garden is primarily a visual experience, and I approach garden design with the same criteria that I use to view a painting or sculpture. I don't believe any formulas or rules can insure success. The real requirements are a well developed sensitivity toward design and good horticultural practice.

●

Rodney Robinson has practiced landscape architecture in the Delaware Valley for the past 10 years. He has a Masters of Landscape Architecture from the University of Pennsylvania and teaches garden design at Longwood Gardens. He is a partner in the firm of Coe Lee Robinson Roesch, Philadelphia and New York.



Service Areas Don't Have To Be Dull

by Anne S. Cunningham

Mary and Laura Bright relax in their backyard. Designer Sally Wood planned the area to be as attractive from above as it is on the ground. When the hydrangea grows across the trellis, the flowering canopy will also hide the parking space.

Service areas, like property tax, are inevitable consequences of owning land. No matter how small the plot, a homeowner is faced with unsightly necessities like trash cans and tool storage. Parking, utility and heating/air conditioning units, compost heaps, even dog pens need not be a source of embarrassment and apologies. Careful planning and planting can easily hide or soften the hard lines of utilitarian objects.

The chief consideration for service area plants is low maintenance. No one wants to spend hours by the garbage cans pruning, shaping, tying, and spraying. A service area should be visually pleasing if you have to look at it, inconspicuous if you don't.

Naturalistic planting is a simple solution. Landscape architect George E. Patton favors several medium size trees underplanted with shrubs to suggest a woodland in his own back yard in Erdenheim, Pa. Behind the natural screen are a small tool house, compost pile, and sick bay for weak stock. Without viewing these potentially unsightly areas from his house or terrace, he has easy access to them, and the "woodland effect" gives his property an illusion of depth that wouldn't be possible with a fence. Another technique he uses to create the impresssion of space and depth within a small area is to "place plants with dull, bluish foliage at the farthest point to simulate atmospheric perspective."

Evergreen shrubs are good visual screens, and if strategically placed, they can help reduce street noise. Hanging baskets provide seasonal screens with color and year-to-year variety not possible with permanent plantings. Perhaps the ultimate in low maintenance camouflage is a stack of firewood. If we want to block out portions of our own or our neighbor's cyclone fence, shed, parking, and utility area, a neatly stacked pile of firewood relieves the starkness, though to avoid termites and other pests, don't place cut wood too near a building.



From the house, the view of the service area is pleasant and spacious.

parking

When a homeowner's back yard is not much bigger than the family car, the chief goal is to have convenient parking that doesn't dominate the small space.

Some landscapers recommend planting a screen between the parking and living areas, though the choice of plants is limited to slow growing ones that won't encroach on either space. For example, *Berberis* 'William Penn', barberry, rarely grows more than 12 in. wide and turns an attractive mahogany color in the fall. Homeowners who use salt on their driveways in winter should choose one of the small salt-tolerant plants like *Ilex crenata* 'Convexa.'

The Robert Girvins, curators of the Hill-Physick-Keith House in Philadelphia, planted a brief lawn between their patio and parking area to create an illusion of spaciousness and the feeling of an unbroken expanse when the car isn't parked there. A bank of flowers on the far side of the driveway brightens the view.

A word of caution concerning small lawns in connection with parking areas: be sure the grass isn't in a direct path between the most frequently used door and the car; otherwise, there is inevitably more trampled mud than grass. Also be sure a small patch of grass is easily reached with a lawn mower. Nothing is worth the tedium of hand clipping grass because it's inaccessible.

tool storage

The requirements of a tool storage area

photos by S. B. Bennett



▲
Vaughan Fletcher's trompe l'oeil paintings of plants, flowers, and accessories decorate the work counter year-round.



Using the sliding doors, Mary Bright has easy access to her bike.
◀

are in direct proportion to the amount of land involved. If there are only a few plants and trees, a handful of tools is all that's needed. A lawn creates the need for a lawn mower, and so on, up to a tractor.

The simplest storage is a tool box that doubles as a bench. A rectangular box with a hinged lid for the seat provides adequate storage for most garden equipment and a place for the weary gardener to rest. For larger storage needs, an attractively built work shed can be a divider between two areas such as the parking and living

continued



photo by Anne S. Cunningham

The parking area of the Hill-Physick-Keith house blends smoothly with a small lawn in front and a bank of flowers in back.

spaces. If there's sufficient air flow, a tool shed can be built back to back or adjacent to the trash can area.

dog pens

There is very little that's attractive about a wire mesh fence that's tall enough and strong enough to keep in an active dog. There's also nothing attractive about bushes in the path of a dog's trajectory. Landscape design consultant Mary Hopkins of Wayne, Pa. had three male dogs in a pen and solved the problem by layering the plants surrounding the dog pen. She put a series of slender, June-flowering *Spiraea vanhouttei* (bridal-wreath spiraea) against the fence, then planted a row of azalea 'Rosebud' in front of the spiraea. The lower part of the spiraea that was hit by the dogs was hidden behind azaleas, and the azaleas were too far away to be affected. For a dog pen viewed from the house, Hopkins recommends spring flowering *Viburnum dilatatum* along the fence with a row of *Ilex glabra* 'Compacta' in front of it. The viburnum keeps its fruit well into March, and the evergreen ilex provides winter screening and visual interest.

sally wood's service area solution

The more limited the space, the more ingenious a homeowner has to be with service areas. Landscape designer Sally Wood, of Devon, Pa., created a masterpiece for the Joseph Bright family in Philadelphia. The Bright's back yard measured 40 ft. long from the back of the house to the street, 18 ft. wide between walls jointly owned by neighbors on either side. The family wanted trees and flowers, comfortable seating, and sufficient room for the two girls to play and the parents to entertain. They needed space for parking and trash, and storage for bicycles, barbeque and charcoal, firewood, potting materials, tools, and other garden and maintenance equipment. No small task.

Designer Wood separated the living and service areas by using a lightweight wooden trellis as an arbor, planted with the hardy climbing hydrangea, *H. petiolaris*. The June and July flowering hydrangea, as it grows, will cover the trellis over the parking area, providing summer shade and a visually pleasing view looking down from the large windows of the house. The squares of the trellis were designed to echo the squares of the windows.

Miffy Bright, an interior decorator, says she's "fussy about keeping things put away," and the redwood storage shed is an organizational masterpiece. Sliding doors conserve space that would be taken up if the doors opened out into the parking slot. In the first shed for sports equipment, bicycles can be hung from hooks or wheeled in by the children. The decorated center portion serves as a potting table during the day and an attractive bar for entertaining at night. Vaughan Fletcher, an art teacher at St. Peter's School in Philadelphia, painted a trompe l'oeil of plants, flowers, and accessories in colors complementing the salmon pink of the various flowers throughout the backyard. Cabinets below the counter hold small garden tools and potting materials. The last sliding door storage shed houses a barbeque and charcoal, a cord of firewood, and trash cans. The door between the yard and the street is also on rollers, continuing the neat appearance and convenience for all.

The wall opposite the storage area is made of old bricks recycled from a demolished building. The same bricks are used for the path between the service and living areas, establishing depth and visual continuity. A small ledge along the wall breaks the otherwise monotonous expanse, and is a perfect perch for statuary or small potted plants echoing the theme and colors of the garden.

The Brights wanted easy flow from inside their house to the outside. "This terrace is our sunroom," says Miffy, "we don't view it as outside, more like a sitting room that happens to be outside." Pots of annuals are placed as casually as the pillows and cushions that soften the area. The original design, nearly a decade ago called for a sturdy, box-like, central table to have a removable lid, hiding a sandbox for the young children, but it wasn't used.

Sally Wood planted the space with low mantenance accents, allowing for the amount of gardening time the busy family planned to spend. The only exception is the climbing rose, 'America,' on a trellis along the sitting area wall.

edible landscaping

If fences were good enough for Robert Frost's New England neighbors, they should be good enough for us. But the serious gardener may not be content until every fence is covered, every inch of ground planted. Edible landscaping is a popular method of getting the produce of the country from a city-sized plot of ground. Fruit and nut trees can be espaliered along fences and walls. Berry shrubs and fruiting vines, given the proper exposure and a reasonable amount of care, can grow on a wide variety of fences, posts and trellises.

Whether a homeowner chooses to camouflage a service area with low maintenance evergreens, or uses the space to grow yet one more treasure, there's no reason for service areas to be dull and unsightly.

●

Anne Cunningham, a member of the PHS Publications Committee, writes freqently on garden subjects. Her work appeared recently in *The Philadelphia Inquirer Annual Garden Guide*



photos by Ed Lindemann

The "landing pad" in a small city garden. The walk meets the entrance door facilitating traffic flow and providing a place to spot color and an interesting garden ornament. Pathways, no matter how rustic in appearance, must always be secure to prevent tripping and twisted ankles.

by Ed Lindemann

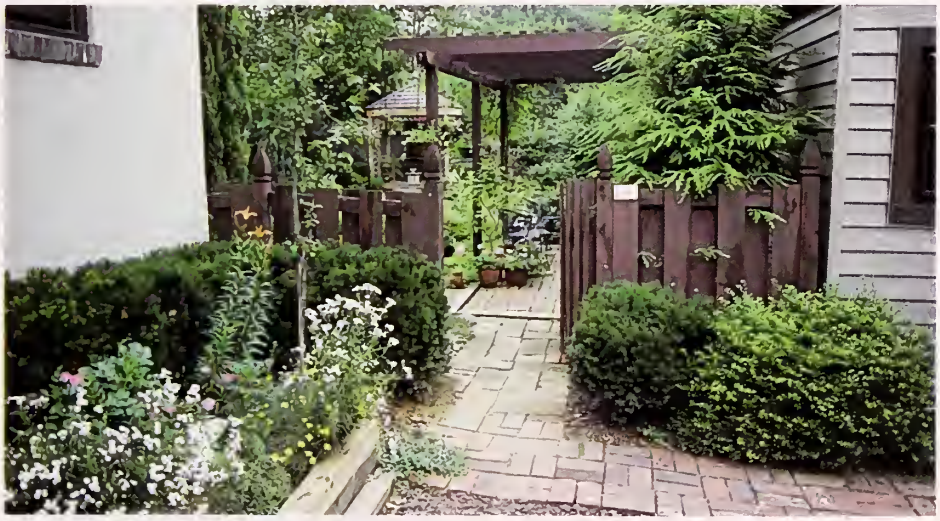
THE ENTRANCE GARDEN ...

plan to put your best face forward

In landscape design the saying that first impressions are lasting impressions definitely applies to the entrance garden. Entrance gardens set the tone for what is to follow; they introduce the outside world to the inner private world. An entrance garden may be a small garden within a series of gardens complimenting each other and forming a unified landscape; an entrance garden may be the sole horticultural embellishment for a structure; or a series of entrance gardens might introduce various points of interest within a larger garden, for example, a kitchen garden, a cutting garden or a work area.

In the small garden the entrance garden is usually the most frequently used part of the garden. It serves as the entrance and exit area from a building or other garden area. In a very small garden it may also

continued



A small cottage garden entrance says "welcome ... this is the way to enter, please come in." The paving, gate and other architectural features lead the way; the plants accentuate, but do not hide, the access route to the garden and house beyond.



A crisp clear entry way to a small kitchen garden provides both an attractive entrance as well as access for working in the beds. Both the gate and paths were made wide enough to accommodate a wheelbarrow. The overall design was laid out to provide winter interest after the vegetable plants have gone. In small gardens that is an important factor since we must live with all of the units twelve months of the year.
◀

A well planned city entrance garden provides year-round interest. This photo taken in November shows the transition of the seasons. The large container of impatiens provided summer interest, the firethorn placed away from the steps is in its full fall glory and the small tree's shadow will play against the wall all winter.
▼



double as the service entrance and perhaps provide seating or a play area for small children.

When planning the entrance garden consider how the area will be used. Will it be the main entrance to a house or commercial building? Will it be a working entrance area or one designed primarily for visual effect? What image do you want to project? Will it be formal, casual, compatible with other segments in an overall landscape?

Once you have determined the use and set the style, start working out the logistics. How much traffic must be handled? Will it be foot traffic or vehicular or both? Should the garden help identify the building? Variety in the design and plants used can give a degree of individuality to building complexes, i.e., condominiums or industrial parks, thereby breaking the environment's monotony.

In any event the planting should accentuate the entrance and not obliterate it. Paths and walkways should service the anticipated traffic without unnecessary curves and obstructions. Here lighting, more than in any other part of the garden, should be carefully incorporated for security as well as for aesthetic effect. The careful placement of plants and architectural features will guide visitors in a comfortable and interesting way without making the new arrival's passage a treasure hunt. An entrance should not have to be sought out, but rather should be subtly inviting.

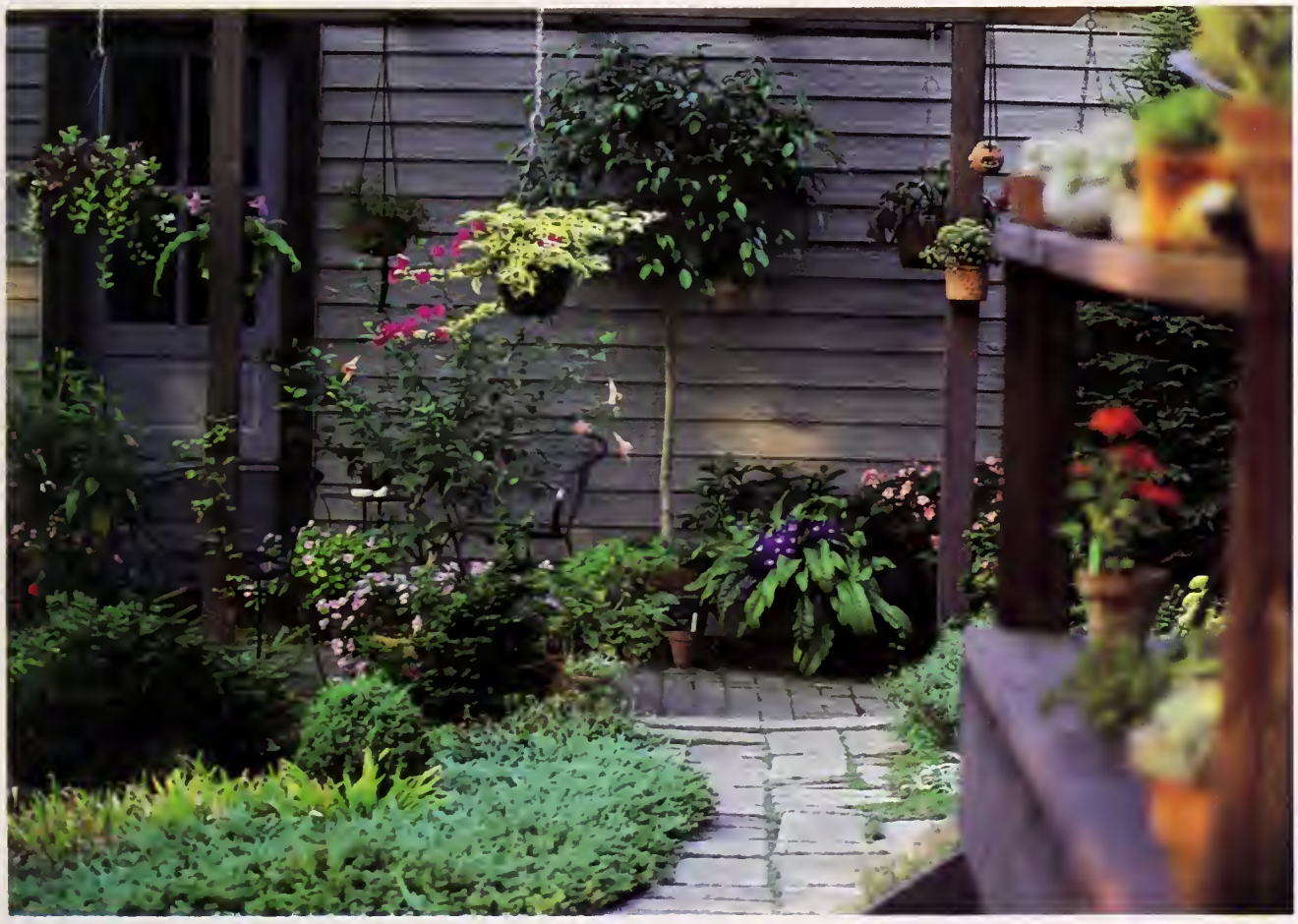
how to create a workable entrance garden

Analysis and restraint are the two keys

The entrance garden to dwellings on Blackwell Court in Philadelphia's Society Hill beautifully incorporates sitting areas, a play area for children and a collection of plants to provide an ever-changing, but always pleasing approach to all seasons. The textural combination of plants and architectural features works perfectly. ▶



All entrance gardens are not at the front door; this one evolved at the entrance to a garage/potting shed. It is actually used by the owners many more times in a day than the main entrance to the house. The garden makes the service entrance attractive and provides a place for staging plants as well as a place to enjoy a cup of coffee and read the mail during a mid-morning break. ▼



to success. Decide exactly what is needed, why it is needed and where to put it from a practical standpoint. If starting from scratch, work with paving first. Plan your access, be careful not to skimp on the size of paths and paved areas. A minimum width of four feet is needed for most walkways. A small paved area or landing pad is a comfortable addition where the walk meets the entrance door or gate. An area somewhat larger than the width of the walk at this point provides space for maneuvering a gate or door. It also provides a spot for a container of seasonal color or garden ornament. When choosing the planting scheme, remember the second key, restraint. Save great splashes of color for more private areas of the garden. Consider small trees for their architectural canopy effect and seasonal interest. Since you will be very close to the plants in this area be aware of their texture, scent and year-round appearance. Avoid plants with thorns, messy fruit or unpleasant odors. The smaller the garden, the finer textured the plants should be. Lastly, choose the lighting needed. Consider the options of a softly flooded entrance, or a bright spot on the street number.

When planning the entrance garden, pick and choose your elements carefully. Remember that it will be your introduction to your visitors. Put your best face forward.

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Ed Lindemann is PHS horticulturist and Flower Show designer.

TRELLISES, FENCES & WALLS

by W. Gary Smith



photo by W. Gary Smith

Louvered wooden fences, such as this one at the Andersen garden in Wilmington, provide enclosure and privacy without sacrificing access to cooling breezes. The fence panels are removable to facilitate moving plants on and off the roof. ▶

The open quality of this rustic wisteria trellis lets in lots of sky, but also gives a strong sense of enclosed space. Unity and diversity are achieved by using different varieties of the same vine. ▼

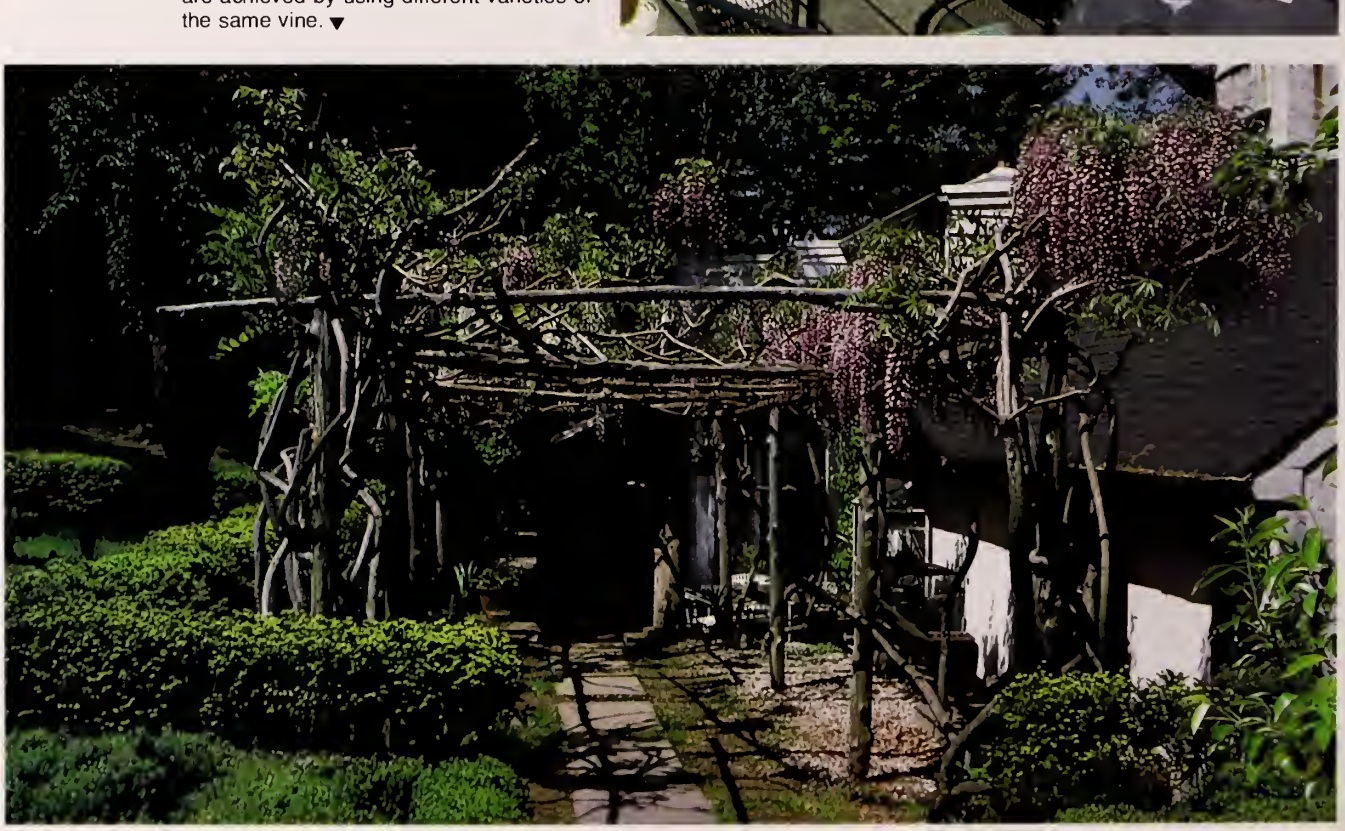


photo by Mary Lou Wolfe



photo by W. Gary Smith

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A stuccoed wall and a trellis structure combine to separate private space from public space in a townhouse development in Center City, Philadelphia. The open trellis structure gives added height to the wall, without making the small private yards seem too claustrophobic.

Bamboo rods give a distinctive oriental flair to this extraordinary garden fence in downtown Wilmington, Delaware. Although the garden is small, the depth and openness of the latticework give the illusion of extended space.



photo by W. Gary Smith

Gardens need enclosure to give them definition and structure. If the garden is big enough, enclosures can be made entirely of plants. In large estates, it is common to enclose the garden with hedges of tall evergreens, or even with entire forests of mature trees. At Versailles, Louis XIV had more than 10,000 acres of forest to surround and enclose his parterres and allees – but Versailles totalled more than 15,000 acres in size. For the typical quarter-acre suburban lot or postage-stamp sized urban garden, it would be difficult to cram in even the smallest forest. So, in small garden design, it is often best to provide enclosure with slender built structures such as trellises, fences, and walls.

The earliest small gardens in human history were surrounded with sturdy walls to protect them from the harsh world outside: their very survival depended upon enclosures. The pomegranates and figs of ancient Egypt were grown behind high brick walls, which protected them from the desert's drying winds. Arbors and pergolas thick with grape vines protected the gardens' human inhabitants from the relentless rays of the sun. In early medieval Europe, gardens were secluded behind high stone walls to keep out the Vandals and the Huns. Behind garden wall, safe from the pagan world outside, one could stroll among arbors of climbing roses and pick fruit from espaliered pear and apple trees. Today in America, with urban and suburban residential areas developing in ever-increasing densities, small garden enclosures are more important than ever. Their importance goes beyond modifying climate and keeping out Huns, for enclosures also create space, screen or define views, provide support for growing plants, and often give vent to our flights of designerly fancy.

There are as many different ways of enclosing small gardens as there are gardeners to enclose them. But in spite of their variety, I believe enclosures fit into one of just three basic types: trellises, fences, and walls. Trellises are the "roof" of the garden, and fences and walls define the spatial boundaries. Whether you are talking about built enclosures, entirely vegetative enclosures, or enclosures, which are combinations of plants and built structures, everything is essentially either a trellis, a fence, or a wall. Try this test: start making a mental list of the things in your own garden that enclose space, and I'll tell you whether it's a trellis, a fence, or a wall. The arborvitae hedge? A wall. The neighbor's garage? Another wall. The grape arbor? An obvious trellis. The row of hollyhocks by the vegetable garden? A living fence. What about the big spreading shade tree over the patio? Well, if you forced me into it, I'd have to classify it as a trellis – but only because another name for "trellis" is "arbor," and *arbor* is French for tree. Actually, I tend to think that trees are in a class by themselves and should never be called trellises, except maybe in France.

The three basic kinds of built enclosures can be used in any number of combinations: fences on top of walls, trellises above fences, walls behind trellises, and so on, but the absolute best way to use built enclosures is in conjunction with living plants. After all, the combining of plants and structures, to make an environment that is inviting and comfortable for people, is what the art of garden design is all about. Without plants a wall is just a wall, but with plants it becomes a garden enclosure. Masonry walls are good for clinging vines, climbing vines look lovely on fences, and trellises – well, let's face it – trellises look plain silly without plants on them.

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W. Gary Smith is a landscape architect who lives and works in Center City Philadelphia. He received his Master of L.A. from the University of Pennsylvania and holds a degree in Ornamental Horticulture from the University of Delaware.



photo by George Patton

If a waterfall is to appear natural, the rock formations must be put together so that the mind can accept it as truly natural. Landscape architect Robert Wheelwright created such naturalistic waterfalls at Valley Garden Park in Wilmington, Delaware that it is difficult to tell if they were done by nature or by man.

WATER IN THE GARDEN

by George Patton

Water has a magnetic effect in the landscape, focusing attention as no other landscape material can. Even a tiny trickle of water in a townhouse garden can go a long way toward establishing a refreshing and pleasant ambiance.

People enjoy the splashy sound and the twinkling, sparkling movement of water in the garden. A water feature can provide a visual focal point, or be a visible or invisible source of musical sound. Water is also a psychological, and to some degree, a physical air conditioner. As a fundamental, life giving, and supporting element of the earth, water has come to have mystical and symbolic meaning for many people. It appeals to our emotions. In the hot city water represents refreshment; in rural settings it is a giver of life for plants, beasts and man.

Water in the landscape engages not only on our visual, auditory and tactile senses, but also our intellectual response based on personal experience, knowledge and imagination. Part of the mystique of water is its symbolic meaning. Designers usually think of water displays as representing or evoking larger water elements. Just as a private garden can be a microcosm of the larger landscape, the water feature in the garden can be a symbol of the natural or man-made water elements. Those we grew up with often have a special meaning for us: the waterfalls near which we picnicked; the springs where the water was so cold it made our teeth ache; the streams we

waded in, dammed, or fished; the fountains and pools of the great classic gardens of Italy, France, Spain, Japan and China we visited.

water to please the ear

The gurgling, rippling, cascading, splashing, murmuring, trickling sounds of water are as musical as anything in nature and as pleasant in the garden as the sound of birds singing. These water sounds evoke memories of running brooks, waterfalls, and town and garden fountains. Indeed the sounds of water in the garden can be as important as the views and should be taken into consideration in the design of water features. The sound of a small fountain can help camouflage off-site traffic noise or other unpleasant sounds.

The Japanese have devised an amusing water powered toy, which they pretend is an alarm to frighten away bears. Water trickles into a cup attached to the end of a bamboo pole. As the cup is filled the bamboo pole, which pivots in the middle, swings downward causing the butt end of the pole to fly up and bang into another hollow bamboo pole. The slow and constant flow of water results in a pleasant repetitive sound. Modern sculptural pieces have been created to move and to make rhythmical sounds by the water's action.

The Japanese love the sound of rain and plant paulownias so they can hear the wonderful sound of rainfall on the large soft leaves.

water to please the eye

The visual qualities of water, its vibrant transparency, its crystalline, sparkling, light-catching, mercurial beauty make it a delight to the eye wherever these qualities can be displayed, especially in a garden setting. No garden is too small to benefit from a water feature.

A basin of quiet water becomes a mirror, which by bringing the sky down to earth, brightens the ground plane. Such quiet basins are most attractive when they are brimming full. They reflect best if the inside surfaces are black.

Moving water flashes and sparkles with light and provides animation in the garden. It can be calming if meandering or slow moving and exciting if vigorous and rapid moving.

natural or artificial?

Water features that nature has created such as waterfalls, blowholes, geysers, whitewater rapids, or reflecting ponds all have their man-made counterparts. These are usually architectural in character rather than copies of nature. It is generally easier to construct a good architectural fountain than it is to create a good naturalistic waterfall.

A successful naturalistic waterfall requires large rocks, a knowledge of rock formations, which is what waterfalls are all about, and a way to move the rocks. The rock formation must be so well put together that the mind can accept it as truly natural. The direction of the strata and type of stone must be consistent and the rock must be installed so that it looks exactly like a natural rock outcrop. The rock mass must appear to be at least half buried, as if exposed by the water's action. Furthermore, the rock mass must appear sufficiently solid and not like a loose pile of rocks. Water would normally flow through a rock pile rather than over it, and we recognize the latter as unnatural and artificial when we see it. Of all the naturalistic waterfalls that get constructed perhaps one in 10 are successful. Good examples of naturalistic waterfalls can be seen at some local private gardens, at Valley Garden Park in Wilmington, and sometimes at the Philadel-

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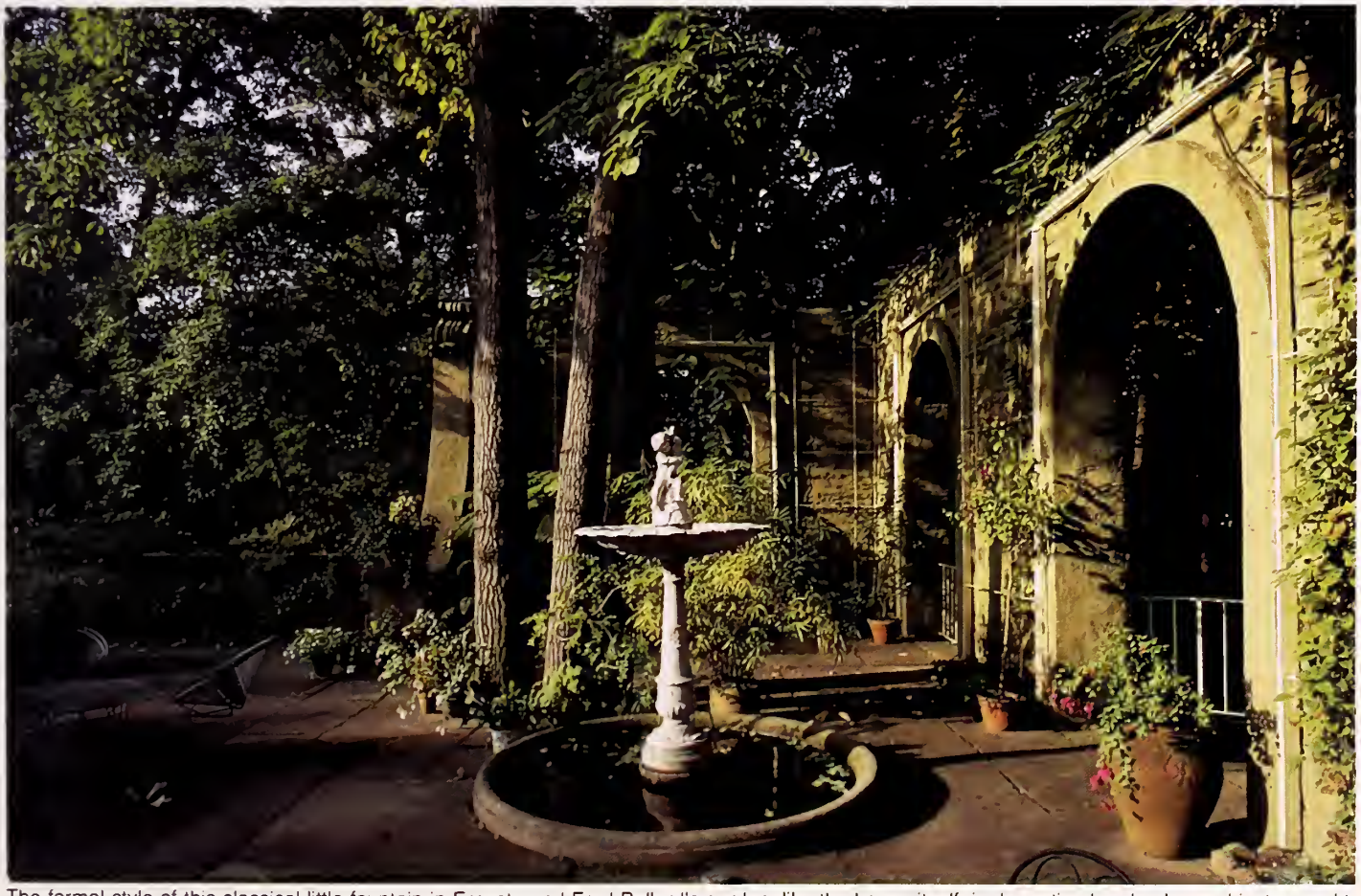


photo by Dean Brown

The formal style of this classical little fountain in Ernesta and Fred Ballard's garden, like the house itself, is dramatized and enhanced juxtaposed to the informality of the natural woodland.



To solve a difficult drainage problem in Rich and Susie Woosnam's yard, a large drainage swale was excavated, filled with coarse crushed stone and then covered with river washed stones to suggest a "dry river" as invented by the Japanese. This garden was designed by the author.

phia Flower Show. But the average homeowner would be well advised to think twice before attempting to build a natural looking waterfall. One mistake, one false note, will break the spell of the natural effect intended.

If you do not choose a naturalistic solution does that mean that the only other choice is a formal water display? Not quite. You can create a stylized garden that borrows from nature making no pretense of actually being natural. You can evoke the feeling of a natural site by using "natural" elements, for example, water-washed or -weathered stones, which will look entirely appropriate even in a woodland setting. And there is nothing wrong with water displays that are frankly man-made. For centuries western civilization knew no other kind.

Most small gardens in the city or suburban lots are too small to accommodate a naturalistic water display. People with small gardens are usually better off using water purely for its decorative qualities and should understand that *natural* in terms of a water display is *not* better than *man-made*. Both use electric pumps. Why not be straightforward and simple?

suggestions for a water display

A simple jet of water shooting up from a small pool is one of the most satisfactory of garden water features. Jets can shoot water straight up, geyser-like or arch outward at an angle. There are jets available that squirt water in a mist spray, a pencil size spout or a surging torrent. Aerating jets that incorporate air in the water look bubbly and white. My favorite jet is a pulsating type that splashes with a pleasant irregularity.

The smallest garden water feature I have ever seen consisted of a tiny crimped cop-

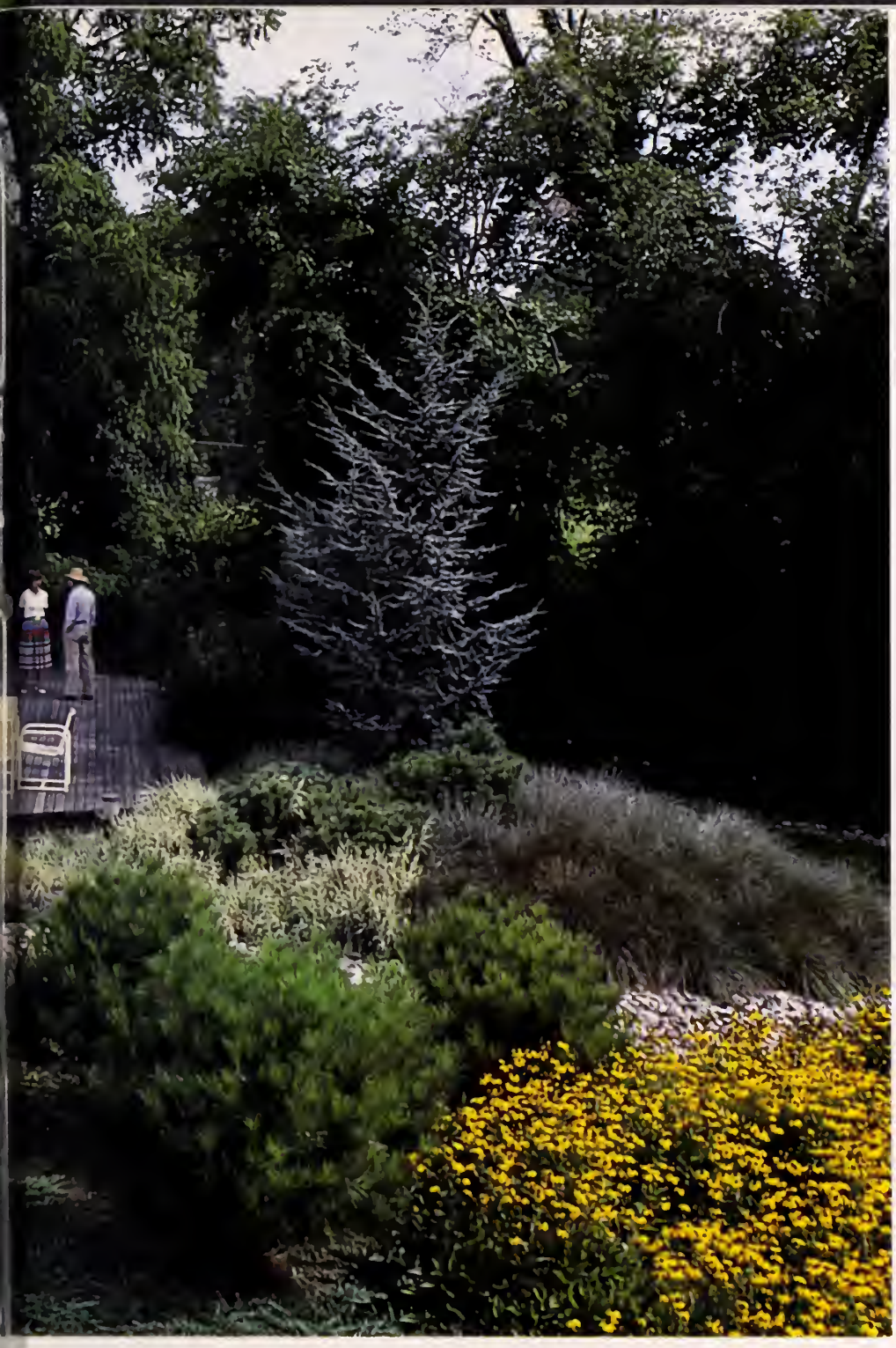


photo by John Gouker

per pipe that allowed water to drip slowly into a shallow depression that the owner had chiseled out of a large Wissahickon schist stone. This fountain was located in a ferny nook of a shady garden. Two tiny gleaming goldfish protected against mosquitoes.

how to build a small pond in your garden

There are several ways to create a small pool in your garden. You might want to experiment with an economical and temporary pond, which you yourself can do with the help of family or friends.

1. Excavate a basin to the size and shape you want your pool. Make sure the rim is approximately level.

2. Line the excavation with a 2-in. cushion of moistened sand. This will protect the plastic liner from being punctured by sharp stones or tree roots.

3. Over the sand lay a heavy sheet of black plastic, leaving an overlap around the rim 6 in. to 12 in. wide (20 ml polyvinyl chloride (PVC) "pool liners" are readily available at garden centers). When filled with water the liner is held firmly against the sand and cannot slip.

4. Conceal the plastic rim by covering with selected stones – the bigger the stone, the better the effect will be. Make sure no plastic is visible anywhere above water. Let the stones overhang the inside edge of the basin slightly. The stones should be large enough so that they cannot be easily moved out of position, and they should vary considerably in size so they won't look like a giant's bracelet.

This temporary method of construction is used in flower show displays because it is adaptable and quick to assemble and disassemble. If you can avoid puncturing the plastic it should last for years.

For a more permanent pool you might consider a premolded fiberglass pool liner, which can be set into the ground. The rims of these are disguised with stones as described above. These tough fiberglass basins come in several shapes and sizes from a 5-ft. diameter round shape to larger free-form shapes (available at J. Franklin Styer Nurseries, Concordville, Pa., The Dutchman Fountains, Lani, Pa. (near Media), Waterloo Gardens, Exton, Pa., and other garden supply centers).

If you are building for the long haul and want a really permanent pool, you have to build it like a swimming pool with reinforced concrete. The concrete ought to be at least four inches thick and reinforced with wire mesh to keep it from cracking during winter freezes.

In all types of construction it is important to give careful thought to the pool rim. Not only should the lining be carefully concealed but the rim should be thought out so that it fits the surrounding landscape whether it is formal or naturalistic. A flagstone coping, which can be removed to replace the plastic, is convenient. For a naturalistic effect, field stones or boulders can be used. It is important to select and compose the stones in a way that gives a pleasing picture. Make a rough sketch first to avoid having to lift and relocate stones unnecessarily.

planting near water

Because water features are the focus of the garden, the planting should be restrained lest it hide the water.

continued



photo by George Patton

Above: A simple jet of water shooting out of a small pool is one of the simplest and most satisfactory of garden features. Sydney and George Patton's garden.



photo by George Patton

Below: Water worked pebbles look good near water because they suggest and recall actual streams we have seen. The pool is lined with egg sized river pebbles. Richard and Virginia Brown's garden designed by the author.

Tips for Designing Water Features for the Garden

- A black lined pool reflects like a mirror and makes the pool fit like a woodland pond into a naturalistic site.
- Still ponds reflect the sky and bring the brightness down to ground level.
- A water feature on a terrace is like a fireplace in a living room in that it provides the focus.
- Materials that naturally occur with water such as worn stones look good near water because they suggest and recall actual streams or lakes we have seen.
- Shading the pool will help to control algae.
- To control mosquitoes, put a few goldfish in your pool. A goldfish pool ought to be at least 12 ft. deep – more if in the sun; otherwise, it can get too hot for the fish. Avoid the use of copper pipes since these may poison the fish. Sóme pool liners may be impregnated with chemicals that are also harmful to fish.
- If you can't stand the sight of algae and insist on sparkling clear water, use a small filter.
- If your pond is big enough to be a hazard to children, check with local ordinances about fencing requirements.
- Here are a few guidelines for designing water features intended to look naturalistic:
  - Never paint the pool anything except black. Blue or white lined pools have no place in a naturalistic environment and tend to look like outdoor bathtubs.
  - Use water worn stones in the water or on its edges, and use ledge rocks for waterfalls.
  - Locate water features where they would occur in nature: ponds in low areas, springs at foot of slopes or sides of a hill, never on top.
  - If you doubt your ability to create a convincing natural effect make it frankly artificial.

Two types of plants that we associate with water are those with reed-like foliage and those with lush light green tropical looking foliage.

Reed-like plants such as cattails, bullrushes and miscanthus grass evoke wet sites and make attractive reflections. A single clump usually is enough. Since these are often invasive spreaders they should be planted in plastic containers buried in the soil near the pool with the top rim even with ground level. The container can also be set directly in the water itself depending on the particular plant's water requirements.

Water lilies can be appealing in a sunny pond but they quickly obscure the beauty of the water if not controlled. For ease of maintenance, water lilies should be planted in containers submerged on the pool floor. The pygmy types are favored for small pools. It is important to keep at least two-thirds of the pool surface clear of vegetation (and other objects) so that it reflects the sky and surroundings.

If the situation is shady consider lush-looking large leaved hosta, ferns, leucothoe or Japanese maples.

Although not winter hardy, Egyptian papyrus is an intriguing 5-ft. tall plant that does well grown in a pot set in a pond. Another attractive tropical plant is the lovely water hyacinth, which likes to float on warm still ponds where there is some sun. Remember that the most common mistake in planting near pools (as with planting in general) is to overdo it. Water is too precious to hide.

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George Patton is a landscape architect who has practiced for many years in this area. He studied at the American Academy in Rome for two years as recipient of the Rome Prize. George Patton Inc. just completed a study for the restoration and revitalization of the Swann Memorial Fountain in Logan Square, commissioned by Friends of Logan Square in collaboration with the Fairmount Park Commission.

dining alfresco

by Charlotte Archer



photo by Edmund B. Gilchrist, Jr.

Jean and Jim Bodine's well-designed city garden is a grand space for entertaining. A brick wall with perforations for air circulation gives privacy from the street; a large spreading crab apple tree provides shade for house and garden. Water drips to staggered saucers and finally to a pool beloved by birds in a free-standing five foot fountain to the right of the picture. A variety of shade and city tolerant plants grow in raised and ground level beds; decorative container plants are moved about on the terrace. The table is set for breakfast.

From the first heat wave in April until Indian summer ends in fall, eating outdoors in comfort in the Delaware Valley is possible. And while the fare may range from a simple picnic to something quite elegant or sophisticated, the alfresco ambiance of garden eating areas can vary also, from the informality of a redwood picnic table under a tree to the formality of elaborate furniture on a paved terrace. The ambiance can be affected by the degree of privacy – more is better – and the quality of shade or protection from the sun. The presence of water, still or moving, can greatly improve the ambiance. An attractive birdbath or a fountain with a recirculating pump makes the air seem cooler on a hot day. Fragrance definitely enhances the dining experience. A strawberry jar planted with sweet alyssum *(Lobularia maritima)*, a large pot planted with two or three heliotrope *(Heliotropium arborescens)*, and a well-pinched peppermint geranium *(Pelargonium tomentosum)* will provide delightful fragrances from May until frost.

A pot of prostrate pennyroyal* (Mentha pulegium) *repels many insects.

An ambiance plus is an insect control system, vital to the enjoyment of eating alfresco. I put two or three drops of 3-in-1 oil on the surface of the non-moving water in my rain barrel (used to fill watering cans) so that adult mosquitoes released from pupa shells cannot escape from the water's surface. Goldfish in my small pool relish mosquito larvae. To repel the neighbors' mosquitoes I use citronella candles and pass the Cutters to guests. I read that eating lots of garlic is good protection. A pot of prostrate pennyroyal *(Mentha pulegium)* repels many insects. Really hazardous are yellow jackets of late summer and fall that buzz around anything edible until dusk. Using honey-water in narrow necked jars to lure them away from a midday meal is helpful but not foolproof.

Another ambiance plus is good planning to minimize trips to and from the kitchen and to have on hand always enough briquets, candles for the glass chimneys, and insect repellent. This planning guarantees that the food you serve will taste better outside than it would have inside.

Four small gardens with alfresco ambiance are pictured here, and one large one with many separated smaller picnicking areas.

continued

dining alfresco

continued

The author's semi-shady garden is a small suburban property. The umbrella, which has recently replaced a dogwood-in-decline, is used often as the terrace is in full sun at high noon and in late afternoon. Many container plants on the two-level terrace are moved often to "redecorate." The peacock looks down on a black painted fish pond, surrounded on two sides by a vine trellis. The table is set for a late summer lunch of Maryland crabs and beer.



photo by Edmund B. Gilchrist Jr.



photo by Ellen Jones



photo by Ellen Jones

(Above)
Theatre-going alfresco picnickers Cindy Tozer and Virginia Pusey dine in one of the garden areas of the People's Light and Theatre Company in Malvern. The large perennial garden accented with annuals and dwarf conifers, designed, planted and cared for by Jo Bachman of Paoli, has several set-apart areas for picnicking.

(Below)
At the People's Light cultural ambiance is added by an artist at work on a canvas and musicians who play on the lawn on performance evenings. A large striped tent provides shelter for all on rainy evenings all season.

continued



photo by Edmund B. Gilchrist, Jr

Jerome Deye's very private sunny garden is on the fourth floor roof deck of his city townhouse. One dines here in a bower of colorful annuals and perennials and large plants that winter in a greenhouse off the fourth floor sitting room (see left). A dacron sailcloth canopy of distinctive design shelters people and shade-loving plants from the sun. Jerry has borrowed scenery: a neighbor's 15-year-old blue spruce, now higher than the canopy, adds color and texture to his setting. As for eating, the kitchen is on the second floor so meals on the deck are easily managed. And romantic – candles only. Two small tables are set to serve coffee and dessert.



photo by Otto Maya

James LaRosa's South Philadelphia rowhouse garden is a perennial winner in the City Garden Contest. Raised beds of evergreen rhododendron and azaleas fronted by bulbs in spring and impatiens and other annuals in summer frame his bricked dining area, which he uses three times a day weather permitting. Sliding doors separate garden from kitchen, easy access for a good cook who entertains frequently. Inspiration for the low maintenance garden came from a Philadelphia Flower Show backyard exhibit. Now all Jim has to do is decide what color the impatiens will be for the next season. Not visible in the picture is a wind-chime made of old eyeglass lenses that makes a very classy sound in the breeze. Jim's table is set for dinner.

Charlotte Archer, formerly PHS membership coordinator, is an enthusiastic cook and gardener

THE NEXT BEST THING TO HEAVEN:

Balconies & Roof Gardens

by Ann Jarmusch

So you've just signed on the dotted line for that dream apartment in the sky and what really got you was the balcony. You imagine toasting the setting sun as you unwind out there after work. You'll slide the balcony doors open for intimate breakfasts at the freshest time of day. *En plein air,* you'll read that stack of books that's been tempting you. And you'll grow so many flowers that your balcony will provide a jungle retreat from the asphalt jungle below.

Sound good? There's just one hitch. Balcony (and roof) gardening is trickier than gardening in the earth. It requires more planning, patience and a willingness to meet – maybe even wrestle – nature on its own terms.

"It's a challenge," concurs Michael S. Williams, who operates the design and maintenance firm Small Gardens for Small Spaces in addition to his full-time job as grounds foreman at Pennsylvania Hospital in Philadelphia. "But balcony or roof gardening can capture many aspects of gardening – dwarf plants, container plants and wall gardens, for example."

Gardens in the sky are at the mercy of the sun, wind and rain, which play mean tricks in the city. Sun may hide behind buildings, robbing a garden of its rightful light and stable temperature, or sunlight may reflect off light-colored buildings onto a grateful garden. Wind is the most devilish element, unexpectedly changing direction and velocity around tall buildings, ripping to shreds leaves and blossoms a gardener may have coddled from seed. And rainfall, sufficient for plants growing in the ground, evaporates quickly from sky high containers, forcing the balcony and roof gardener to devote considerable time – and inventiveness – to watering.

Resourceful and determined gardeners have, of course, overcome all this. For his roof garden which he successfully started last year, Matthew A. Drodz, Jr. selects only plants that can tolerate the all-day sun pounding his Old City location in Philadelphia. They behaved exactly as they should, producing an explosion of foliage and hot-colored blooms. On balconies around the city, readily available annuals

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Matthew Drodz enjoys his opulent city roof garden in the August dog days.

photo by John Gouker

such as geraniums, begonias, marigolds, and impatiens are consistent winners, while perennials seem rare, partly because of their shorter blooming period and space requirements.

Williams took on the wind in a recent design for a roof garden above Philadelphia's Rittenhouse Square. He's planting an essential wind barrier of hollies, teamed with fencing. These plants will provide winter color as they do battle.

Whether you choose to invest in a barometer or rain gauge, you can help combat evaporation by grouping plastic containers no smaller than 14 inches (which can be sunk into clay pots, if that's the look you want) and adding mulch or pebbles as the top layer of each one. Not all balconies come with a spigot, so reach for a plastic, two-gallon watering pail or a lightweight hose you can connect to the nearest sink. Caution: experts, including Williams cite improper watering as the chief nonpathogenic cause of death among plants on roofs and balconies.

As with any garden high or low, observation is the key to preventing problems. By monitoring light, temperature and wind at different times of day, you can get off to a good start with plants and shrubs appropriate to your conditions. Vulnerable to the elements on all sides, roof gardens are prone to microclimates with their own winds and temperatures. This means a plant might thrive within yards of where it had been failing.

Designing a garden in the sky could begin with envisioning what you'd like to see from indoors looking out all year round, from bulbs to berries. If there's an unattractive view out yonder, block it with a living screen. You have the option to rearrange your container-grown plants like furniture, rendering obsolete the initial plans you drew in chalk on the floor. Even large, heavy containers can be moved by rolling them on a board resting on broomsticks.

Caution: experts, including Williams, cite improper watering as the chief nonpathogenic cause of death among plants on roofs and balconies.

Does the balcony seem smaller than you remembered it? You may have more growing space than you realize. Start vines or an espalier climbing from a narrow trough flush with the wall. Grow herbs in a strawberry jar and hang planter boxes in tiers from the balcony railing. Make the most of corners with assorted containers in stepped configurations and suspend flowering plants from an awning or roof. Plant weeping trees that grow down, so to speak, faster than they grow up, and add annuals to the perimeter of containers holding trees and shrubs.

Consider weight both for you and the balcony, as bearer of all plants, containers, soil, fertilizer, mulch, tools, watering apparatus, furniture, bird feeder, and other luxuries. Check with the building engineer before adding that coveted dwarf cherry tree or constructing a masonry planter. Williams uses potting soil for these.

Are you sure your new tree will fit in the elevator? That your watering won't be so zealous that it showers the balcony below? That the insecticide you're forced to spray won't be carried by the wind to harm your neighbor's pets or vegetable plants? That the stain for the wooden planter box is nontoxic to plants?

Because tools can be as few as a trowel, fork and gloves, with one "upstairs" gardener reportedly making do with only a kitchen spoon, storage space should be no deterrent to the balcony gardener. For the more ambitious, some balconies and many roof gardens can accommodate a tool shed, while others simply make double use of a bench with storage under the seat. Even compost heaps are not unheard of among balcony gardeners.

The sky really is the limit, whether your fantasy sky garden runs to a white picket fence with rambling roses against a backdrop of skyscrapers or a mini "field" of wildflowers accented by silver birches and cotton clouds. Ask Williams, who has never advised anyone not to start a garden because of hostile conditions. "All you need is enthusiasm and patience," he insists. "If you have those, you'll make it."

The Drodz Roof Garden in Old City



photo by John Gouker



photo by John Gouker

Matthew Drodz's sunny roof garden overlooks Old City in Philadelphia.

In one fell swoop last year, Matthew A. Drodz, Jr., a lifelong gardener, created the roof garden many of us only dream about. The crowning glory of a two-and-a-half-story building he recently renovated for home and business, this urban garden is awash in vividly-colored plants native to the tropics and Mediterranean countries. As it happens, Drodz prefers the hot reds, oranges, yellows, and pinks of jungle blossoms. All welcome the strong sunlight and heat, which from morning until evening drenches this 500-square-foot roof from all directions but north.

"Last year, I did something quick, to have a garden to enjoy without too much maintenance," says Drodz of his thriving masses of geraniums, marigolds, begonias, cacti, and herbs, fringed with white pines, Blue Atlas cedar and cypress. "But this year I gave it more thought."

His thoughts for 1986 did not include cannas, whose flowers "got very tattered in the wind." Instead, he now grows heliconia with leaves resembling the part of cannas he did enjoy. He introduced some blue to his flaming colors via morning glories grown from seed. And he decided to substitute yellow peppers for green to complement the three tomato plants that provided fruit "all through the summer and then some." Drodz has the advantage of auditioning plants for rooftop hardiness from his stock at Old City Flowers, the business he operates at street level.

The eight-by-18-foot rooftop greenhouse Drodz calls "the saving grace" not only houses his large orchid collection but also serves as winter home to such plants as star jasmine, standard hibiscus, bougainvillea, passionflower, ixora and oleander, now part of the garden. Cuttings from pink dipladenia, Drodz's unexpected triumph from last season and possible lure to the hummingbird he spotted, emerged from the greenhouse to climb a stucco wall.

Like Drodz's many honored guests, plants and trees arrive at the roof through the house. Drodz fears this may be the last year it will be possible to maneuver back outdoors the eight-foot-and-still-counting banyan tree he grew from seed.

Needing only minor pruning, those trees and shrubs permanently installed on the roof came through their first winter just fine, including the hinoki cypress Drodz was cautioned about. All were left unprotected from winter wind and snow, with only occasional waterings.

Quite the opposite is true of summertime watering, so demanding that Drodz begs for a vacation from it. A hose connection from the greenhosue sink helps with this nightly chore, which Drodz perhaps makes more difficult with the esthetic decision not to pot small plants in oversize containers.

Aphids attacked the hibiscus on the roof, and when spraying proved ineffective, out they went. This year is the last chance for hibiscus, says Drodz, who suffered no other pest problems in 1985.

Last spring Drodz replaced all of the soil in the terra cotta containers (some of which conceal plastic ones). Cutting off dead annuals at the soil line, he shook the old soil and roots into a big burlap sheet, which he then bundled and lowered over the side of the building, destined to enrich his father's flower borders in New Jersey.

Detail-minded Drodz constructed his roof to last, with an architect's help. Supported by steel beams, the wood decking can be dismantled in four sections, in case of roof repairs. It was Drodz's idea to build a square bench around the existing skylight for additional seating with a view of center city, the river and beyond.

To duplicate his garden, Drodz says it would cost about $500 for plants, soil and containers. Duplicating the effect might be something else again. Says Drodz, "I just follow my instincts."

continued

The Lang Balcony

For 18 years, Victor J. Lang, Jr. has savored his own balcony garden at Hopkinson House, overlooking Washington Square in Philadelphia. Committed to this high-rise with balconies stacked on alternating floors so that each one is open to the sky, Lang commissioned cabinetmaker James T. Connelly of Bryn Athyn to line his concrete balcony with cypress. Bolted to the concrete in 1973, this siding, planter boxes and decking (slatted for runoff to the drain in the concrete floor)

He estimates start-up costs for a balcony like his at $250 to $300, including the consultant's fee, with annual costs declining as fewer plants and supplies are needed.

weathered to the silvery patina Lang favors over the annual painting of concrete he saw as his alternative. (For another solution, see Charlotte Weiss' identical balcony.)

Last year, Lang hired Michael S. Williams of Small Gardens for Small Spaces to design and maintin this north-side garden newly equipped with four cypress plant stands. They support yellow marigolds and blue lobelia, with a spiky bromeliad providing contrast. Three metal-lined planter boxes at the balcony's front receive enough sunlight to sustain trailing vinca and geraniums. The vinca and geraniums are kept pruned so as not to be caught by the tremendous winds Lang experiences on the 26th floor.

In the rear corners on the floor, begonias and coleus in lightweight plastic containers retain moisture better than they would in terra cotta. Lang finds, and offer the variety of neutral colors important to his design. In other years, Lang has successfully grown petunias, morning glories and a hibiscus on his balcony. A seven-foot succulent, nurtured by him since it was 18 inches tall, summers on the balcony because, Lang reports, "It likes this rotten Philadelphia humidity."

Lang, on the other hand, prefers air conditioning and, at summer's peak, views his garden like a jewel through double glass doors made less noticeable by the huge green houseplants that flank them. His essential yellow "bug lights" may be dimmed for atmosphere and comfort when he ventures out

The same wild wind that can ravage tall and delicate plants soothingly jingles windchimes as it cools Lang and guests who sit on director's chairs tall enough to



photo by John Gouker

catch the breezes baffled by the balcony walls. Their height also offers a bird's-eye perspective on the city skyline and treetops in the square below.

To Lang's mystification, it is not only friends who find their way to the 26th floor. Pests such as spider mites, whiteflies and mealy bugs may be airborne or arrive in new plants or soil. Lang's methods of pest prevention include periodic systemic treatments of combination plant food-insecticides. Once pests are spotted, he resorts to spray insecticides, since none of his plants are meant to be consumed. If the infected plant is one Lang really cares about, he'll go after the bugs with alcohol on a cotton ball.

Persistent windburn and too shallow containers persuaded Lang to remove the evergreens that formerly provided the balcony's sole winter greenery. Now his garden extends his living space from mid-April through October; his biggest complaints about his garden are that he can't have it all year-round, that it doesn't face east and that it's not four times bigger.

"A great deal of anything you do out there is experimental," cautions this veteran balcony gardener. "I suggest the not very large investment of consulting a professional who has done high-rise gardens before." He estimates start-up costs for a balcony like his at $250 to $300, including the consultant's fee, with annual costs declining as fewer plants and supplies are needed.

"Gardening does a great deal to compensate for life in a high-rise," he maintains. "You couldn't get me to move to a building without balconies."

The Weiss Balcony

Clusters of annuals make a brilliant statement on Charlotte Weiss' 6 ft. by 8 ft. balcony identical to Victor Lang's at Hopkinson House in Philadelphia. Following the sound design principle of concentrating on small-scaled plants to enhance a small space, these begonias, impatiens and geraniums also soften the concrete balcony wall overlooking Washington Square and, as shown here, the view to the west.

These annuals are a perennial Mother's Day-birthday gift from Weiss' daughter-in-law, Lucia Weiss, a horticulture student at Temple University. The orchid, her first, was another gift, which produced 12 blooms last year despite Weiss' professed intimidation.

Armed with gardening know-how from her former house with a yard, Weiss has found the transition to balcony gardening smoother than expected. The usual villains – sun, wind and pests – seem to have passed by this 11th-floor oasis facing north. As a guard against wind, Weiss keeps her plants small and low, well within the balcony walls. Pests don't often arrive with her plants, purchased at a reputable suburban nursery, or if they do, are elimi-



photo by John Gouker

Note: The blue and white pot was moved from the wall behind for the photograph only. *Never* place pots on high ledges.

Using only a trowel and a fork, Weiss claims her gardening chores amount to only 15 minutes a day.

nated when Weiss wets down her plants during watering. Because of intense sun and wind, her container-grown plants need watering more frequently than when Weiss gardened on the ground.

Most of her varied terra cotta containers came with Weiss when she moved in four years ago. Unlike her upstairs neighbor Lang, she sticks with clay for its looks and evident acceptability to her plants. The complementary terra cotta heads on the wall were bought at Gargoyles in Philadelphia.

Making herself at home here included the laying of indoor-outdoor carpet for easy care and color familiar to ground-level dwellers. Plastic webbed aluminum chairs pull up to a small round table topped with a piece of impermeable, aggregate pebbles sold as paving material. This table is here year-round for sentimental reasons as well as practical ones. "That top cost about $9.95 at Sears," Weiss explains. "It's a piece left over from our first house, where my husband laid a walk with it."

Having grown some of the same plants at that house, Weiss says now, "I'm settling for this." Using only a trowel and fork, Weiss claims her gardening chores amount to only 15 minutes a day. Far more time is spent lingering over the Sunday paper during breakfasts on the balcony. Says Weiss, whose appartment is so packed with houseplants that she has no room to winter-over any from the balcony. "I don't know how anyone can have a balcony and not have a garden."

continued

The Richards Balcony



photo by John Gouker

Gardening knows no bounds at the Richards household in the Mt. Airy section of Philadelphia. Having dug into the front and back yards, Larry Richards could not resist the balcony off the master bedroom in his gardening scheme. A librarian and a painter, Richards understandably attacks his gardens after much research and reflection on color and composition. This past winter, for example, his reading prompted him to try nasturtiums on this year's balcony, so he sowed seeds under flourescent lights in his basement painting studio.

"The more neglected the soil and the hotter the sun, the more nasturtiums flower." Richards concludes, although other sources caution that July is the cruellest month for them in the Delaware Valley. Their red blooms can be seen from the street in troughs 12 in. deep by 6 in. wide that Richards built and hung from his metal balcony railing for additional growing space and privacy.

Shade-loving impatiens withered last year in his first go-round with the sun-drenched troughs, and, conversely, may have drowned in the rain running off the fixed awning above. Ironically, the stones Richards placed on the soil's surface to help retain moisture were *too* effective, so they were the first things to go as Richards tried to save his favorite flowering plants. A second, lower tier of troughs shaded by the ones above offered impatiens an acceptable home.

"The sun is treacherous," warns Richards of his southeast exposure, despite the awning and nearby trees, which do aid the second-story garden as windbreaks. Philosophical about learning the hard way, Richards keeps a log organized by plant variety and simply resolves not to use fuchsia again unless he has a spot to hang them close to the house under the awning. Alyssum was another worry, requiring extra watering, which Richards accomplished by running a 50-foot narrow hose from his bathroom sink. (This year's plans call for the installation of an automatic watering system for all the Richards' garden areas.)

Returning to their places on the balcony are white geraniums in containers and begonias in hanging baskets that Richards wintered-over in a new window greenhouse. Red and white salvia and red zinnias, if they passed Richards' inspection after his first time growing them from seed, reinforce this year's color scheme. Green houseplants vacationing on the balcony include cactus, philodendron and dieffenbachia.

"I look at everything from the standpoint of design," says Richards, who plans his balcony garden with the colors and textures of the ground-level flowers and shrubs directly below in mind. Cost is not really a factor now that Richards is growing plants from seed and moving others indoors for the winter. This year he spent only $15 for seed and supplies.

Root pruning and repotting with remixed soil is one of Richards' spring rites. On a big plastic sheet, he empties containers of their soil, which he then restores with new top soil, sphagnum peat moss, vermiculite and a general 20-20-20 fertilizer. "And that old soil is no longer 'old.'" Richards declares, adding "I leave in some roots – just more organic material." A few weeks later, when the fertilizer in this mix is depleted, Richards begins dosages of the fish emulsion he swears by.

His wife Beverly requested a flower garden and the bower off their bedroom fits the bill. With a pot of coffee brewing just inside, the Richards adjourn to the balcony for refreshment. Last year's much-prized serenity there was interrupted by wasps who were also attracted to the flowers, but Richards has since located their nest. The birds who would have been welcome never visited the balcony, congregating instead in the back yard.

It's a sad day, Richards confesses, when the door closes for the winter on the balcony. "I lose a lot of my house," he laments. And when it reopens in the spring? "I love it, I love it," Richards bubbles. "It's my favorite time of the year."

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Ann Jarmusch wrote about PHS's Philadelphia Green program in the 1986 Philadelphia Flower Show Program and contributed articles to the *Philadelphia Inquirer's* 1986 "Garden Guide."



photo by Darrel Apps

ORNAMENTS IN SMALL GARDENS

by Bonnie J. S. Day

As a garden, everything about it was wrong. No plants to speak of, just summer-brown grass and a pitiful stick of an azalea. And the ornaments! Innumerable plastic ducks, cute chicks, bunnies, squirrels, and gnomes coyly crouching behind a loopy white fence. I blinked and shook my head, but they were still there. It was not a dream.

Everyone has his or her own nightmare vision of ill-used, inappropriate garden ornaments: pink flamingos, lantern jockeys, birdbaths made from old tires. But it is much more difficult to say what makes a good garden ornament; really, there are no hard and fast rules. An ornament works when its purpose, position, material, scale, and meaning have been carefully considered in the context in which it appears: the garden. Be it functional or purely decorative, an ornament should reflect the tastes and interests of the people who made the garden, and heighten their appreciation of it. Not only does an ornament add beauty to a garden, it catalyzes the association of ideas and memories that add another layer of meaning to the garden and say more about the people who made it: a mythological figure like Pan or a symbolic one, an object from the gardener's past given new life and meaning in his garden, or a particular artistic form or style.

Using ornaments and ornamental details in a small garden is more difficult and, possibly, more necessary than for one on a larger scale. A small garden is often an extension of a living space, in need of the humanizing touches ornaments provide to continue the feeling of civilization outdoors. And, as Gertrude Jekyll believed, when there is less space, a gardener has to work harder to overcome the garden's limitations and make the space more interesting.

The expression of a garden in a limited space is condensed into a sort of horticultural shorthand, and you must choose all the more carefully the objects and details that accent it. There is less room for error, and one mistake can be very obvious indeed. The best approach is to break the garden down into coherent parts (you may have only one!), consider what you're likely to be doing there, plan for one center of interest to a part, and make use of complementary detail on accessories, furniture, and structures to amplify your statement of style.

▲ Garden sculpture can be humorous. A pair of painted ceramic raccoons are perched on a rock in a shady garden.

Establishing scale, or the proper spatial relationship between ornament, plants, and garden, is a tricky business in any garden. Carlton Lees, in his book *New Budget Landscaping* (Holt, Rinehart & Winston, New York, 1979), suggests that we think of a garden as a space that has a shape, a sort of hollow sculpture. Everything you put into that void takes up space, creating masses of plants, structure, air, and objects that are related to each other like pieces of a three-dimensional puzzle. A garden ornament is one piece of that puzzle.

Elizabeth Schumacher, a local garden ornament expert, advises her customers to go into their garden with a yardstick and cardboard boxes and make a mock-up of

continued

an ornament to see how it fits into their garden's space. She has more helpful suggestions for figuring out scale. Objects that are in proportion indoors often are dwarfed by their surroundings when they're moved outdoors, she says, so garden ornaments look better when they seem slightly larger than life. She points out that plants help establish the scale of the setting and the way an ornament fits into it: a small piece requires smaller or finer-textured plants around it, while a larger ornament may blend better with big, bold-textured plants.

Before you can begin wrestling with the problem of scale, however, you need an idea of what you want to do with ornaments in your garden. An ornament or ornamental detail must serve some purpose in the garden's design, whether it is purely decorative or functional, obvious or discrete. It is most often a focal point, unifying the entire garden or emphasizing a particular part. It can end a vista, provide a resting place for the eye, mark the beginning or end of a path, or the place where the path turns. Smoothing the transition from house to garden is another job an ornament can do, by continuing the look or feel of architecture set by the house. An ornament can do double duty, a particular virtue in a small garden, by being as functional as it is attractive: a birdbath or a sundial. And don't forget that one of the best things an ornament can do is provide an element of surprise and delight, beauty or humor when it is least expected.

Once you have established the ornament's role, you can consider its relation to the plants around it: will it echo the texture, line or form of a plant nearby, or contrast it? What sort of style would be appropriate? Remember the building materials used in existing garden structures, too, for the ornament should harmonize with them as well as with the plants.

Aside from the familiar types of ornaments – traditional sculpture, sundials, planters, urns, birdbaths, and birdhouses – there are a great many opportunities for ornament in your small garden. Nature is a source of more than the plants that fill your garden. Unusually shaped stones may be transformed into sculpture, while topiary, living sculpture, is art and horticulture combined.

It's worth using your imagination to go beyond the usual run-of-the-mill pieces so commonly available and search for something special. Recyling objects, using them purely for their own form, personal significance to you, or newly-created function, is a popular trend in garden ornamentation. Elizabeth Schumacher envisions a huge old Chinese stone mortar becoming a birdbath, a gargoyle supporting a table top. A Chinese window tile (a clay tile with cutouts) set in a wall will improve air circulation and afford a view outside the garden without sacrificing privacy.

Then there are the details that refine your garden's expression of style: gates and gateposts, water faucets, hose guards, planter holders, benches and other furniture, weather vanes, lights, light shields and lanterns, even wind chimes, a sort of auditory ornament. Just keep a firm rein on your enthusiasm (like plants, we can't have everything we like) and the two p's of purpose and position in mind, and garden ornaments will become an integral and satisfying part of your personal room outdoors.

Tutti Kung, Chinese god of the earth, is placed in roadside shrines to watch over farmers' fields in his native land. Transplanted to the United States, he now protects a vegetable garden in King of Prussia. The rhododendron framing the stone icon repeats the shape of the leaves carved at its base. ▼



photo by Elizabeth Schumacher



photo by Elizabeth Schumacher

Two black ornaments accent the exit of this white-walled courtyard garden, part of a 1979 Designers' Showhouse staged in Villanova, Pennsylvania. An iron fireback, originally used at the back of a fireplace to reflect heat, now works as a wall plaque. The aluminum tulip urn, a copy of an antique iron piece, repeats the curve of the wall on which it sits. The antique appearance of both objects and the antiqued bronze faucet handle complement the crumbling "old" look of the garden walls.

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Hand-wrought and cast iron gates, fences, railings, trellises, planter holders, decorative iron espaliers.

Greg Leavitt
Upper Bank Forge
476 Valleybrook Road
Wawa, PA 19063
(215) 358-1766
Custom hand-forged garden gates, outdoor sculpture, railings, furniture, and fountains. Floral motifs and art nouveau style a specialty.

Peter's Clay Pot Mart
1320 North West End Boulevard - Route 309
Quakertown, PA 18951
Unique Italian and Mexican terra cotta planters in many different styles, shapes and sizes.

Meadowbrook Farm
1633 Washington Lane
Meadowbrook, PA 19046
(215) 887-5900
Unusual planters, pedestals, figures, birdbaths, and fountains.

Jean Salter
The Swamp Fox
Chadds Ford Barn Shops
Routes 1 and 100
Chadds Ford, PA 19317
(215) 388-7682
Hand-sculpted clay planters, sundials, wall dials, birdbaths, and drip fountains with floral and wild-life motifs.

Zeidler Gallery
2207 South Street
Philadelphia, PA
(wholesale showroom)
Original, limited edition cast-stone ornaments, available at Longwood Gardens' and Winterthur's garden shops. For other retail sources, call (201) 453-2701.

Don't forget estate sales, antique shops, and flea markets. Two additional sources of information are:

House of Boughs: A Sourcebook of Garden Designs, Structures and Suppliers, by Elizabeth Wilkinson and Marjorie Henderson. Viking Penquin, Inc., 1985. An encyclopedia of garden structures, objects and design elements, useful for browsing through to get ideas. There is a source list and bibliography at the end of the book.

"Garden Ornament: A Catalog Review" by Peter Loewer. *American Horticulturist,* v. 65, no. 2, February 1986. The author describes 13 catalogs specializing in mail-order garden ornaments.

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Bonnie Day is a horticultural consultant and writer living in Wilmington, Delaware.

Sources for Garden Ornaments

Here are some sources for garden ornaments. The list is incomplete and is meant only to help you start looking.

Edward Fenno Hoffman 3rd. Sculptor
353 Oak Terrace
Wayne, PA 19087
(215) 688-5270
Custom sculpture in bronze or terra cotta of children, mother and child groups, animals and mythological figures

Elizabeth Schumacher's Garden Accents
J. Franklin Styer Nursery
914 Baltimore Pike
Concordville, PA 19331
(215) 459-2400
A large selection of distinctive antique and modern garden ornaments, pools, benches, and fountains.

Fillipe Brothers, Inc.
7722 Winston Road
Philadelphia, PA 19118
(215) 247-5973

Letters to the Editor

Pressure Treated Lumber vs. Cuprinol

My husband and I are redesigning our perennial garden with a view to (1) rejuvenating it and making it prettier, and (2) making it easier to take care of. Jan Riemer's article in the March issue of *Green Scene*, "Raise Your Sites," was therefore particularly valuable for its ideas and suggestions.

However, I was distressed to read therein that pressure treated lumber is toxic to plants and that seasoned lumber brushed with Cuprinol should be used instead. We have gone the Cuprinol route with other outdoor projects and find it unsatisfactory on several counts. First, it is a nuisance to apply if there is much quantity of lumber to be done. Second, and more important, since it is only a surface application its life is limited and it must be renewed every couple of years. For something below ground or at ground level, this is obviously impractical.

Pressure treated lumber, on the other hand, lasts thirty years with no further application, because the chemical used impregnates the wood at the cellular level and will not wear off.

I therefore did a little research of my own. I called a local lumber company and asked what the chemical is that is used in pressure treatment. They gave me a toll free number for the Osmose Wood Products Company (1-800-522-9663), who do pressure treatment of lumber. I was told by them that the chemical used is chromated copper arsenate, water-borne.

I then checked with one of my former teachers at Temple-Ambler in the landscape design department. He informed me that this chemical is not toxic to plants when water borne, and only slightly so when in an oil base. In other words, an oil based chemical would not be suitable for use in the greenhouse where evaporating gases would be more concentrated. But outdoors the amount of evaporation even from oil-based chromated copper arsenate would be very slight and of no consequence. Since in pressure treated lumber the chemical is water borne, there is therefore no reason at all not to use it.

Mim Whaley
Landscape Designer
Narberth, PA

Certainly didn't mean to alarm Mim Whaley. Pressurized wood is probably all right to use for general construction, but for building raised boxes for the purpose of growing vegetables for consumption the agricultural agent preferred using the cuprinol product since it did not contain copper arsenate. As you know, we're organic gardeners and continually strive for the purest approach; therefore, I still feel reluctant to recommend pressure treated wood for this specific purpose.

Jan Reimer
Newtown Square, PA

[Editor's Note: This important issue has surfaced before, and we would like to continue this dialogue either in the letters section or as an article. Please contact me if you feel you have additional information to contribute.]

Deer Go After the Champs

The deer population is a real problem in central New Jersey. Twenty years on this site saw no deer damage outside the really wooded area. But the last five years they have become the number one cause of losses of young evergreens.

Contrary to Benner's experience (*Green Scene*, Jan/Feb 1986) their *favorites* here are some of the champs, darn it.

Martha B. Darlington
New Lisbon, NJ

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READING ABOUT SMALL GARDENS AND THEIR DELIGHTS

by Mary Lou Wolfe

From the PHS Library Collection

All books listed may be borrowed. To borrow by phone, call 625-8256.

Award-Winning Small-Space Gardens. Chevron Chemical Co., San Francisco, 1979.

An Ortho book illustrating garden ideas selected by the American Association of Botanical Gardens and Arboreta. Good ideas for city gardens including narrow side yards and rooftops.

The Book of Patios and Ponds. Gordon Ledbetter, Alphabooks, Sherborne, Dorset, DT9 #3LN. England, 1982, 1985.

Complete instructions for creating a beautiful small landscape using water without great expense and with minimum maintenance.

Decorating with Flowers. Denise Otis and Ronaldo Maia, Abrams, NY, 1978.

A magical book with fanciful and possible ideas for dining *alfresco*. Not many of us will execute the galax tablecovering but anyone can get ideas from Ronaldo Maia's mixtures of vegetables with flowers. Innovative containers, startling juxtapositioning of flowers and foliage.

The Complete Book of Garden Ornaments, Complements and Accessories. Daniel J. Foley, Crown, NY, 1972.

Beautiful coverage of sculpture in the garden, planting containers, outdoor furniture, sundials, and ornamental gates.

Fences & Gates, Walkways, Walls, & Drives. Annie E. Proulx, Rodale, Emmaus, PA, 1983.

Explicit, illustrated information on all aspects of fencing, in a format that the absolute beginner can understand. Includes descriptions of tools and construction techniques including recipes for concrete and mortar.

Flowers and Food for Special Occasions. Sheila MacQueen, Hyperion, London, 1980.

This elegant approach to food and arrangements for special occasions includes a few outdoor examples: a barbecue, a mid-summer's eve party, a summer buffet luncheon. Among the recipes is one for gooseberry and elder flower water ice.

Garden Construction in Pictures. Adrienne and Peter Oldale, Drake, NY, 1974.

Generous photographic coverage of many gardening projects including double digging, casting paving slabs and planting bowls, constructing trellises and espaliers.

Gardens by Design. Peter Loewer, Rodale, Emmaus, PA, 1986.

Step-by-step plans for twelve imaginative gardens including a garden of grasses, of seeds and pods, a shade garden and night garden plans that invite fireflies and brown bats ("gentle, warm-blooded mammals that keep to themselves").

The House of Boughs. Elizabeth Wilkinson and Marjorie Henderson, Viking, NY, 1985.

This Yolly Bolly press production "isolates and collects the designs and structures that people have built to complement, organize, protect, and embellish their gardens for as long as gardens have existed." Covers architectural aspects of garden design from "alcoves" to "wells" with an excellent section on "fences."

How to Plan Your Own Home Landscape. Nelva M. Weber, Bobbs-Merrill, Indianapolis, 1976.

Basic design principles illustrated by Molly Adams's good photographs. Much of Weber's work was done in the northeast so the examples are especially appropriate for suburban gardens in the Delaware Valley. Line drawings supplement photos.

Rock and Water Gardens. Ogden Tanner, Time-Life Books, Alexandria, VA, 1979.

Part of the Time-Life encyclopedia series. The photographs are especially useful in visualizing ways to use rocks and water in your garden.

continued

The Salem House Book of the Water Garden. Philip Swindells, Salem House, Merrimack Publ. Circle, Salem, NH, 1985.

A practical guide to constructing, stocking, and maintaining a pool. Gives detailed, step-by-step line drawings.

The Small Garden. John Brookes, Macmillan, NY, 1978.

The examples are English but the design ideas are universal. Brookes describes the basic framework, then extends the house into the garden by balcony and roof installations and illustrates a tremendous variety of successful small gardens. Includes night lighting, children's play areas, outdoor cooking spaces.

Sun Designs Gazebo Study Plan Book: A Beautiful Getaway in Your Own Backyard. Janet A. Strombeck, Sun Designs, Rexstrom, Delafield, Wis., 1980.

Sketches of 45 different gazebos and arbors that the author describes as "like a sun porch in the middle of your lawn or garden." Sun Designs sells designs for these structures.

Walks and Paths – Driveways, Steps, Curbs and Edgings. Reginald R. Hawkins, D. Van Nostrand, NY, 1951.

Excellent chapter on driveway design including how to determine auto turning requirements, materials, drainage. Simple line drawings show details of constructing walks, steps, brickwork.

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This small Wilmington garden is shared by three residents without subdividing the limited back yard area. Designer Rodney Robinson provided each resident with a degree of privacy and a view onto the central space of intersecting grass circles outlined with stone and brick. See page 4.

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